

# Commercial Refrigeration & Air Conditioning

December 1957

UNIVERSITY MICROFILMS  
315 NORTH FIRST ST  
ANN ARBOR MICH 48106  
R1A

## How 1958 looks to the DEALER

We asked  
dealers,  
distributors,  
and  
contractors  
all over the  
country for  
their opinions  
on next year's  
business.  
You'll find  
what they  
told us  
on page

26



AN INDUSTRIAL PUBLISHING CORPORATION MAGAZINE

***Circulation now over 30,000***

**FIELD-PROVEN...RUGGED...QUIET...LOW-PRICED**

**ACCESSIBLE**

**4 H. P. and 5 H. P.**



**COPELAMETIC**

**MOTOR-COMPRESSORS  
GIVE YOUR EQUIPMENT  
SUPERIOR PERFORMANCE**

The hottest news yet in cooling! That's the best way to describe these latest achievements of Copeland research and development. They are just what the industry needs for the big residential and commercial market utilizing these sizes.

These new compact Copelametic motor-compressors will

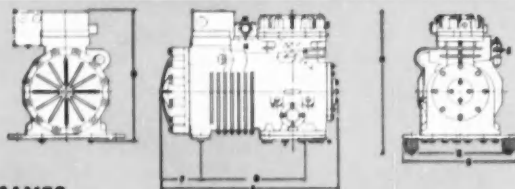
give all the long-time, carefree service traditionally engineered into every Copeland product. They're quiet, rugged, accessible. And, of course, they have been field-proven and are competitively priced. All single-phase models are inherent-protected—three-phase models available with external inherent-protectors.

These motor-compressors are added evidence you can always count on Copeland.

SINCE 1918

**Copeland**  
REFRIGERATION CORPORATION, Sidney, Ohio

## SPECIFICATIONS AND CAPACITY DATA



### DIMENSIONS AND SHUT-OFF VALVES

Model	H.P.	A (Max.)	B (Max.)	C	D	E	F	G	H—Suct. SOV		J—Discharge SOV	
									Tube O.D.	Type	Tube O.D.	Type
LRH-400	4	19 1/4"	13"	16 1/2"	11 1/4"	11"	4 1/4"	14 1/2"	1 1/8"	S	1 1/8"	S
LRG-500	5	19 1/4"	13"	16 1/2"	11 1/4"	11"	4 1/4"	14 1/2"	1 1/8"	S	1 1/8"	S

### COMPRESSOR DISPLACEMENT, REFRIGERANT, OIL CHARGE, WEIGHT

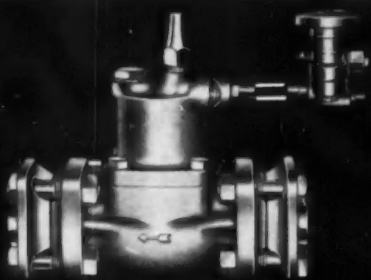
Model	H. P.	Cyls.	Bore	Stroke	CFH Disp. @ 1750 R.P.M.	Refrig.	Oil Recharge	WEIGHT	
								Net	Shipping
LRH-400	4	2	2 1/4"	1 1/4"	698	R-22	5 1/2 pt.	236 #	253 #
LRG-500	5	2	2 1/4"	1 1/4"	815	R-22	5 1/2 pt.	236 #	253 #

### CAPACITY DATA (BTU/HR.)

Model	Evap'g Temp.	Suct. Press.	DISCHARGE PRESSURE											
			170.1 #	183.7 #	197.9 #	212.9 #	228.7 #	245.3 #	262.6 #	280.5 #	298.3 #	317.9 #	338.0 #	359.7 #
			CONDENSING TEMPERATURE											
			90°F.	95°F.	100°F.	105°F.	110°F.	115°F.	120°F.	125°F.	130°F.	135°F.	140°F.	145°F.
LRH-400	45°F.	76.6 #	68625	66500	64375	62000	59895	57750	55375	53000	50875	48250	45875	43625
LRG-500	45°F.	76.6 #	78300	76000	73600	71500	69100	66900	64500	61900	59600	57500	55200	53000

Based on 95°F. Suction Gas Temperature and no Heat Exchanger.

Circle No. 1 on Reader Service Card

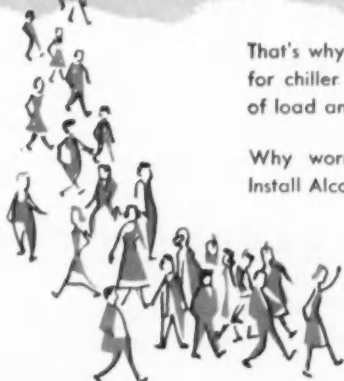


# alco's PO valve

## maintains control

## when cooler load falls off

**SENSITIVE CONTROL** down to 15% of nominal capacity  
**NO LIQUID SLUGGING** to wreck the compressor  
**CLOSE SUPERHEAT CONTROL**



That's why Alco is recommended so often for chiller applications with wide ranges of load and capacity.

Why worry about compressor failure?  
 Install Alco and relax!

Capacities: 20 to 200 tons, F-12 and F-22

**Buy Alco . . .**  
**The System Shows the Difference**

Write for Bulletin No. 189-57

The one complete line of refrigerant controls that insures product quality: Thermostatic Expansion Valves, Refrigerant Distributors, Solenoid Valves, Section Line Regulators, Flooded Evaporator Controls, and Reversing Valves.



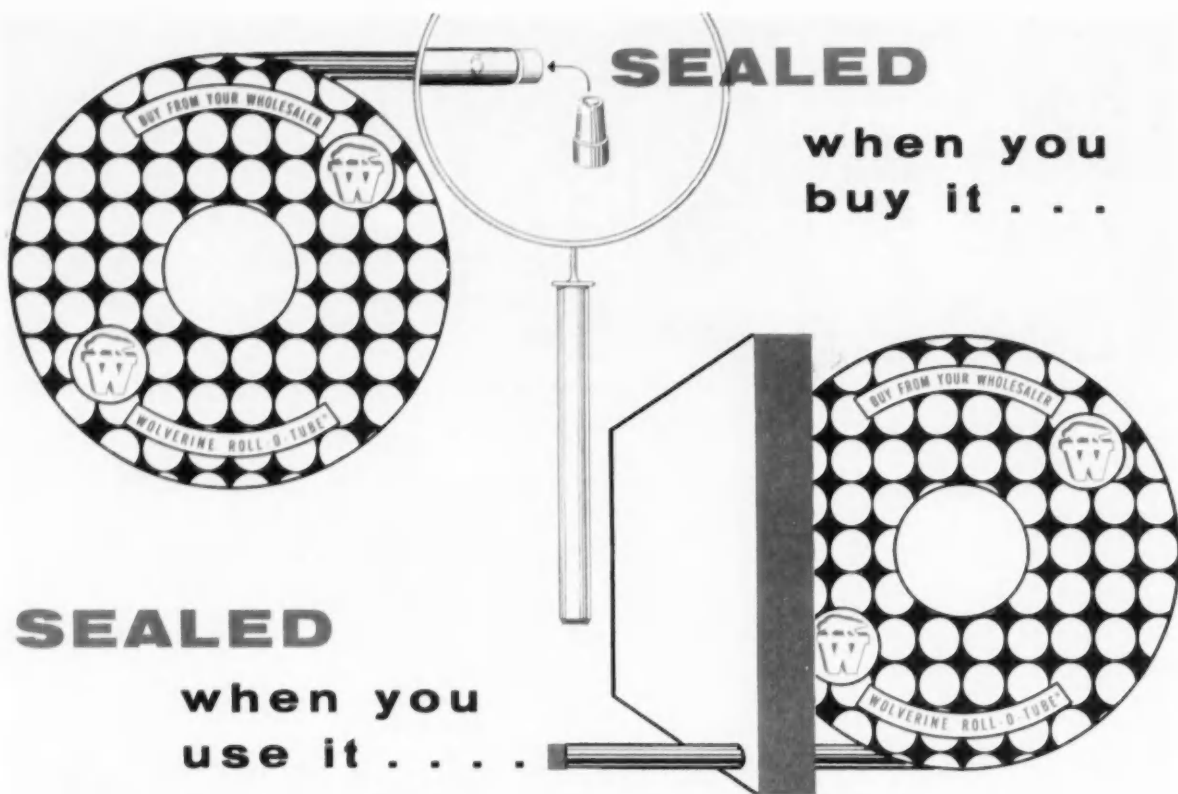
### ALCO VALVE CO.

843 KINGSLAND AVE • ST. LOUIS 5, MO

SEE YOUR ALCO WHOLESALE

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7600



Remember when copper refrigeration tube came with a "one-time" seal. You cut off the seal (wasting an inch or two of tube) and that was it—there was nothing left to protect unused tube against moisture and dirt.

It isn't that way anymore. Now—from Wolverine Tube—you can specify copper refrigeration tube with a new kind of end seal—one that not only brings you the tube clean and dry, but which also keeps unused tube in the same sparkling mill condition.

Wolverine's new tube seal is a plastic plug that gives you positive sealing against moisture and dirt. It is easy to use and can be used time and time again. Because it is the same in

size as the O.D. of the tube this seal makes it easy to thread tubing through partitions, etc.

This, however, is only one of the dividends you reap when you make Wolverine your "buy word" for copper refrigeration tube. In addition to positive sealing, you also get highest quality, refrigeration tube, consistent in temper and packaged in the time-saving Wolverine Roll-O-Tube® carton. Here is real convenience. Roll-O-Tube can be used as a reel, is easy to carry, easy to open and protects unused tube until needed again.

Next time you order refrigeration tube ask for Wolverine Roll-O-Tube. You'll receive positive sealing, top quality tubing and modern packaging—all at the same time.

**BUY FROM  
YOUR WHOLESALER**

**BUY WOLVERINE TUBE -  
IT'S MADE IN AMERICA**

**CALUMET & HECLA, INC.**  
CALUMET DIVISION  
WOLVERINE TUBE DIVISION  
FOREST INDUSTRIES DIVISION  
CALUMET & HECLA  
OF CANADA LIMITED  
CANADA VULCANIZER AND  
EQUIPMENT COMPANY LIMITED



**WOLVERINE TUBE**

**Division of Calumet & Hecla, Inc.**  
17228 SOUTHFIELD RD. • ALLEN PARK, MICH.

Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

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EXPORT DEPARTMENT, 11 EAST 40TH STREET, NEW YORK 16, NEW YORK

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# Commercial Refrigeration & Air Conditioning

DECEMBER 1957 • Vol. 14 • No. 12

## 25/It's Your Business—Keep It that Way!

Don't forfeit your birthright in this business by failing to improve your ability to sell. With the growing trend toward packaged products, you no longer can rely on installation and service alone.

## 26/How 1958 Looks to the Dealer

We asked dealers, distributors and contractors all over the country for their opinions on next year's business. Here's what they told us.

## 29/Bird's-Eye Planning

The better you visualize a proposed market for a food store prospect, the better are your chances of making the sale. Here's how one distributor does it.

## 30/7 Industry Problems as I See Them

A veteran air conditioning executive offers his diagnosis of the industry's major ailments, and suggests some possible remedies.

## 32/Planned Defrosting Will Boost Cooling Efficiency

Frost build-up on cooling coils reduces heat transfer rate, cuts system efficiency, raises operating costs. Here are some ways to lick it before it causes trouble.

## 34/Hit 'Em While They're Hot!

That's the merchandising theory of this automobile air conditioning dealer who boosts his business by using radio spots timed to hit traveling men in their cars at day's end.

## 36/Basic Steam Heating Systems

There is no slack season in air conditioning service for the contractor prepared to handle heating as well as cooling equipment. This article analyzes the four basic types of steam systems.

## 39/Proper Control Protects "Duplex" System

## 41/Air Conditioned "City"

Rockefeller Center's 15,382 tons of comfort cooling sets a new world record for integrated office air conditioning systems.

## 53/Music, Maestro, Please

A Milwaukee radio station gives this old phrase new meaning by air conditioning the area in which expensive musical instruments are stored.

## 58/'56 Industry Sales Top Billion Dollar Mark

Department of Commerce figures based on manufacturers' shipments show continuing gain.

## 77/There's a Trick to Joining New Freezers to Old

### Departments:

*Letters/6*

*As We See It/16*

*Let's Talk Business!/25*

*Applications Manual/39*

*Commercial Sales News/42*

*About People/46*

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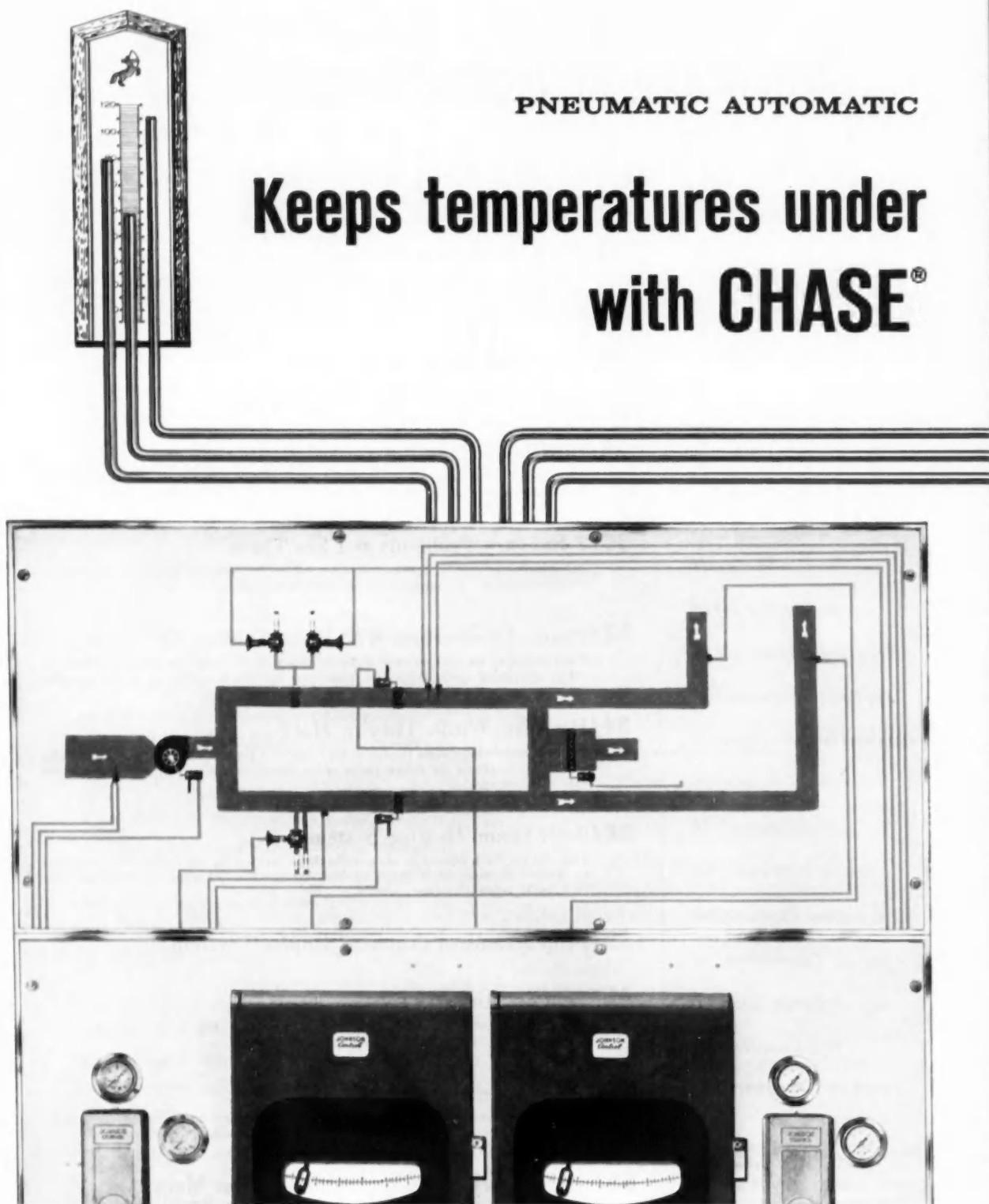


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PNEUMATIC AUTOMATIC

# Keeps temperatures under with CHASE<sup>®</sup>



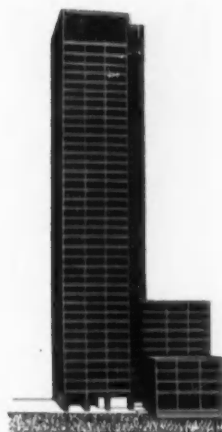
**Typical pneumatic control panel** has graphic illustration of Chase Copper Tube. Shows intricate pattern of tube controlling individual systems, of which there are thirty throughout the building from basement to penthouse.

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DECEMBER, 1957 • COMMERCIAL REFRIGERATION

## CONTROL SYSTEM

# control in Seagram Building copper tube!



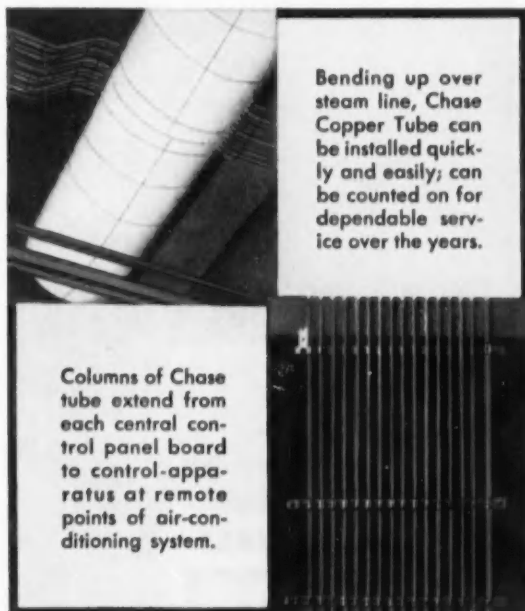
### BRONZE SKYSCRAPER HAS 30 MILES OF CHASE COPPER TUBE

3,000 control valves...1,000 thermostats...dozens of panel boards...all inter-connected by a 30-mile network of Chase Copper Tube! That's what it takes to control the temperature, flow and pressure of air, steam and water for the complete air-conditioning system in the monumental new bronze building at 375 Park Avenue.

Only the best would do for New York's most modern, most magnificent skyscraper. So for the installation of its Automatic Temperature and Humidity Control System, a completely pneumatic control system, utilizing Chase Copper Tube, was used. Based on past performance, Chase Copper Tube was chosen for its durability, low cost and attractive appearance.

Quick and easy to install, Chase Copper Tube saves both time and money...makes a virtually "permanent" installation, operating always at peak efficiency. In addition, Chase offers prompt, completely reliable delivery of desired quantities—a vital factor where storage is at a premium and delay costly.

For time-tested quality plus the service you require, plan your modern control installation with Chase Copper Tube!



Bending up over steam line, Chase Copper Tube can be installed quickly and easily; can be counted on for dependable service over the years.

Columns of Chase tube extend from each central control panel board to control-apparatus at remote points of air-conditioning system.

# Chase

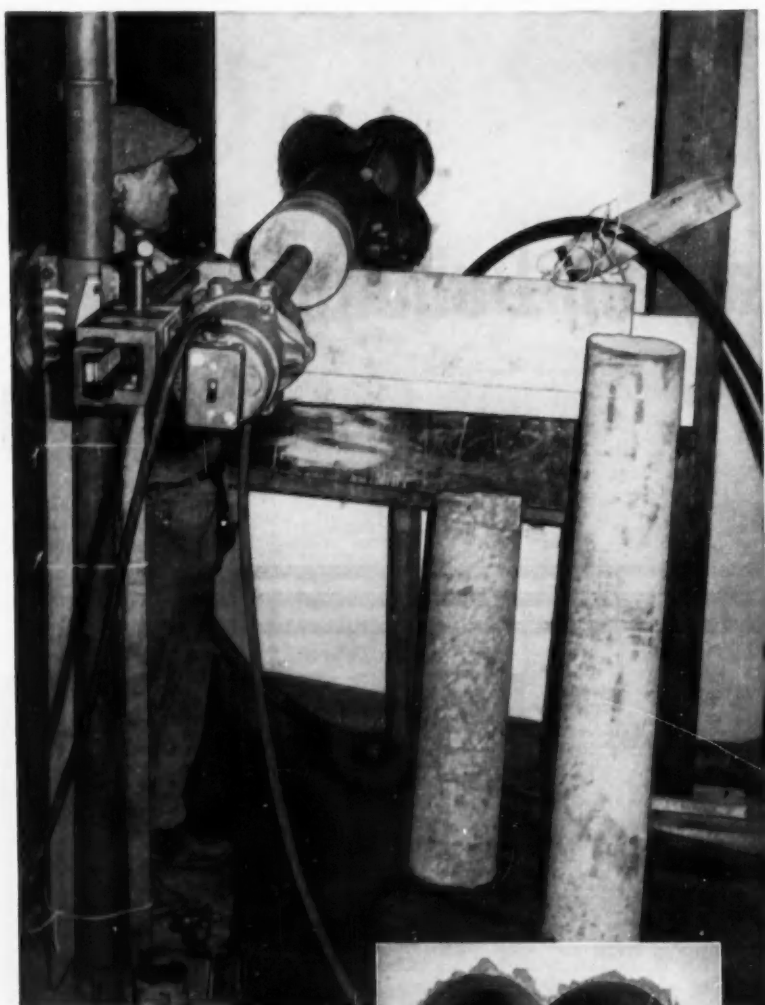
**BRASS & COPPER CO.**

WATERBURY 20, CONNECTICUT  
SUBSIDIARY OF KENNECOTT COPPER CORPORATION

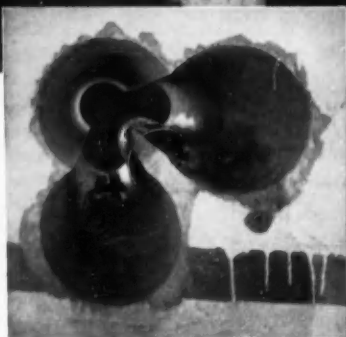
*The Nation's Headquarters for Brass, Copper and Stainless Steel*

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**DRILLING  
8" HOLES  
THROUGH 7-FOOT  
REINFORCED  
CONCRETE WALL  
AT 1" PER MINUTE**



Job: cutting 27" x 10" window opening in existing 7'2" reinforced concrete wall housing cyclotron unit at Harvard University for observation window. Air hammers or carbide bits would have been impractical and the entire wall would have had to be rebuilt. A Truco Diamond Drilling Machine with 78 rpm heavy duty drill motor and 8" bits was used to drill eight holes. Each hole was drilled in two four-foot stages. Pictures show group of four holes from each end.

**See our Exhibit at Booth 464, Plant Maintenance Show, Chicago**

**Truco Swivel Division  
WHEEL TRUEING TOOL CO.**

4-3200 W. Davison Ave • Detroit 38, Michigan

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# Special low-current starting costs less WHEN YOU SPECIFY

## *Century* PART WINDING START MOTORS

Here's the easy and inexpensive answer to having big motors that will start easily when starting current is limited. Part winding starting is available on all popular size Century motors up to 400 H.P., polyphase, in drip proof, totally enclosed and explosion proof frames, horizontal or vertical mounting.

For fast service from stock, call your nearby Century Distributor or Century District Sales Office.

Two 50 H.P. Century Part Winding Start motors power these unloading type air conditioning compressors. When starting, just half of the winding is energized, drawing less than two-thirds of normal starting current. In a few seconds, the full winding is connected and the motor delivers full torque at full current.



### TO CENTURY ELECTRIC COMPANY

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Please send copy of bulletin "Where Low Starting Current Is Required"

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Get your free copy of our bulletin: "Where Low Starting Current is Required." Mail this coupon today...

Performance Rated<sup>®</sup>  
MOTORS  
1/20 to 400 H.P.



## CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri • Offices and Stock Points in Principal Cities

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# Extra protection features for Jamison super freezer doors



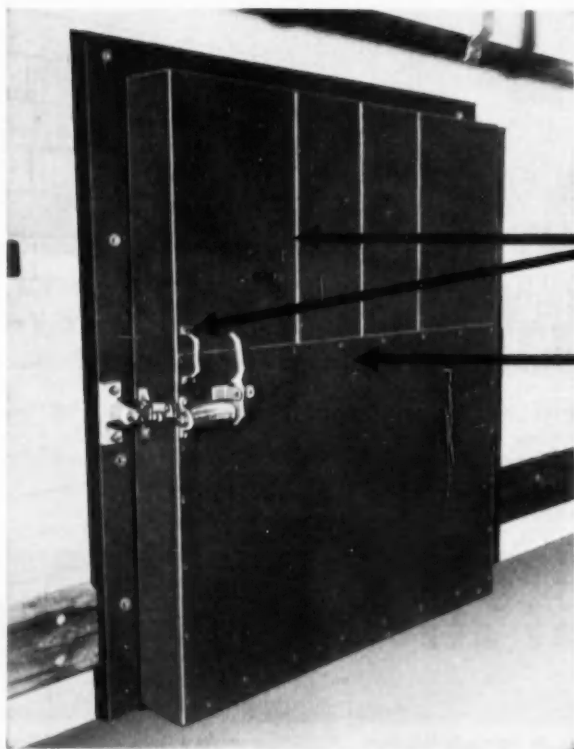
batten doors and vestibule save refrigeration

metal cladding on frame and back of door for protection from vapor and moisture

exclusive Jamison Vap-r-tyt\* construction for protection against vapor penetration, has locked and soldered seams and sealed bolt holes

metal kick plate 48" high on frame and inside and outside of door for protection against bumping and abuse

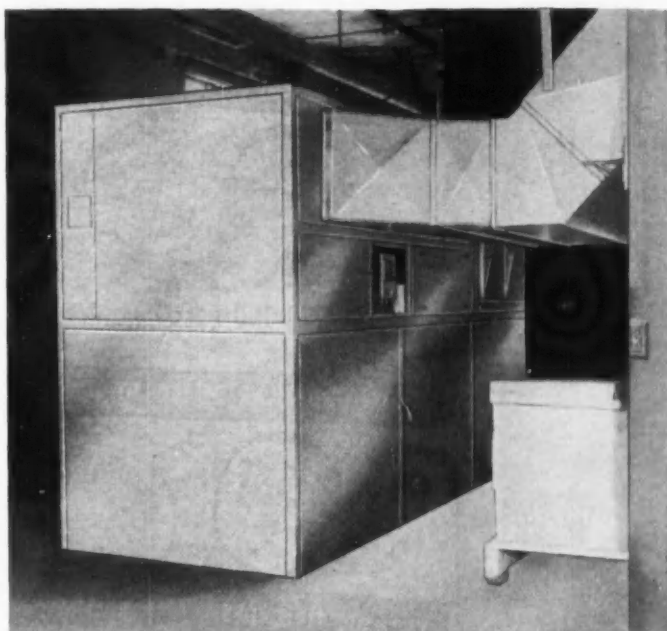
*\*Vap-r-tyt is a Jamison trademark*



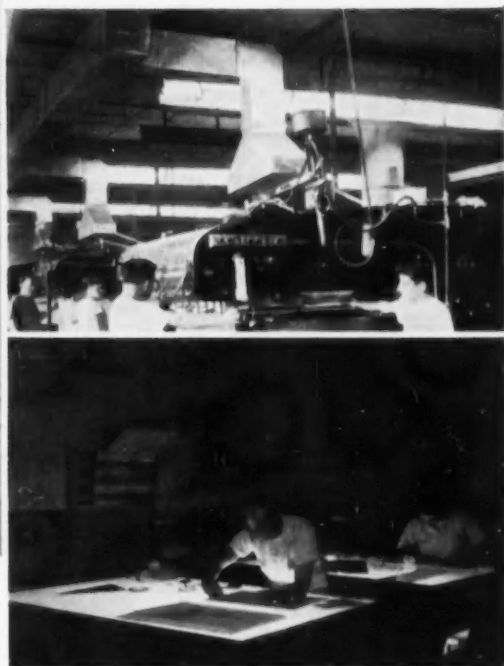
More JAMISON Doors are used by more people than any other Cold Storage Door in the world.

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DECEMBER, 1957 • COMMERCIAL REFRIGERATION



Engineers and Contractors: Tryon, Inc., Springfield, Mass.



**SIMPLE** TO SPECIFY...

**SIMPLE** TO INSTALL...

**pre-engineered 'CPU' Air Conditioning Package**

by

**DUNHAM-BUSH**

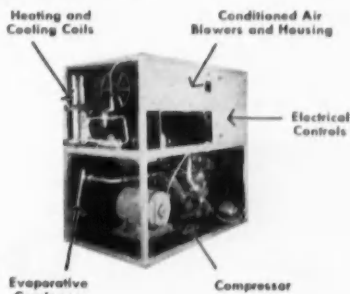
Proper control of humidity is an important consideration in a printing plant. At General Offset and Printing Company in Springfield, Mass. the decision was made to air condition the paper storage area, pressroom and "stripping" room.

Once this had been decided, top management executives naturally wanted the installation made quickly.

A Dunham-Bush 'CPU' Pre-Engineered air conditioner was selected. This unit is a complete air conditioning system housed in one cabinet—containing evaporator, compressor, evaporative condenser and pump, fans, motors, piping and controls.

Installation required only connection of power supply to control panel, connection of water make-up line and necessary duct connections.

For your next air conditioning job, why not eliminate specification and installation worries by selecting a Dunham-Bush 'CPU' Commercial Package Unit.



**Dunham-Bush, Inc.**

WEST HARTFORD 10 • CONNECTICUT • U. S. A.

**DUNHAM-BUSH**

AIR CONDITIONING • REFRIGERATION • HEATING • HEAT TRANSFER

WEST HARTFORD, CONNECTICUT • MICHIGAN CITY, INDIANA • MARSHALLTOWN, IOWA

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heat

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**AN ENTIRELY NEW DESIGN**

**OH BOY! MICRONIC FILTRATION TOO**

**LOOK AT THAT TRANSVERSE FLOW**

**ABSO-DRY PRESSURE SEALED "THEY HISS & TELL"**

**BRASS END CONNECTIONS—EASIER TO SEAL**

**HIGH WORKING PRESSURE—500 PSI**

**LOOK! GRANULAR DESICCANT TOO**

**CERAMIC FIRED DESICCANT BLOCK**

**NO FOOLING, LESS PRESSURE DROP**

**ABSO-DRY PRESSURE SEALED DRIER**  
HENRY VALVE CO.  
CONTROLLING FLOW  
U.S. PATENT NO. 2,800,000

## **"DRI-COR"...**

### **a New Name—a Finer Filter-Drier**

■ You can expect the best from Henry. Here's the new "Dri-Cor" Filter-Drier. It incorporates an activated ceramic desiccant block for micronic filtration in combination with granular desiccant for high efficiency drying with low pressure drop. Drying and filtering are properly proportioned.

Like other Henry Driers the "Dri-Cor" is

thoroughly reactivated and pressure sealed at the factory, through the exclusive patented Henry Abso-Dry process.

This assures maximum drying efficiency at the time of installation. See this new type Filter-Drier at the show. It is definitely a "must" for those who demand the best.

**HENRY VALVE CO.**

MELROSE PARK, ILLINOIS (Chicago Suburb)

Cable: Hevalco, Melrose Park, Illinois

VALVES, DRIERS, STRAINERS, AND ACCESSORIES FOR REFRIGERATION, AIR CONDITIONING, AND INDUSTRIAL APPLICATIONS

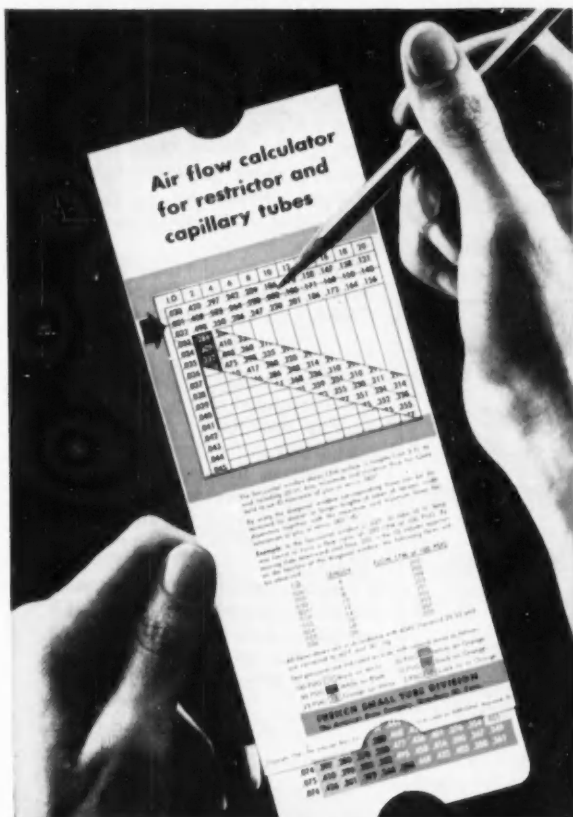
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LISTED BY UNDERWRITERS' LABORATORIES, INC. UNDER RE-EXAMINATION SERVICE FOR MAXIMUM WORKING PRESSURE OF 500 PSI

# New Restrictor and Capillary Tube Air-Flow Calculator

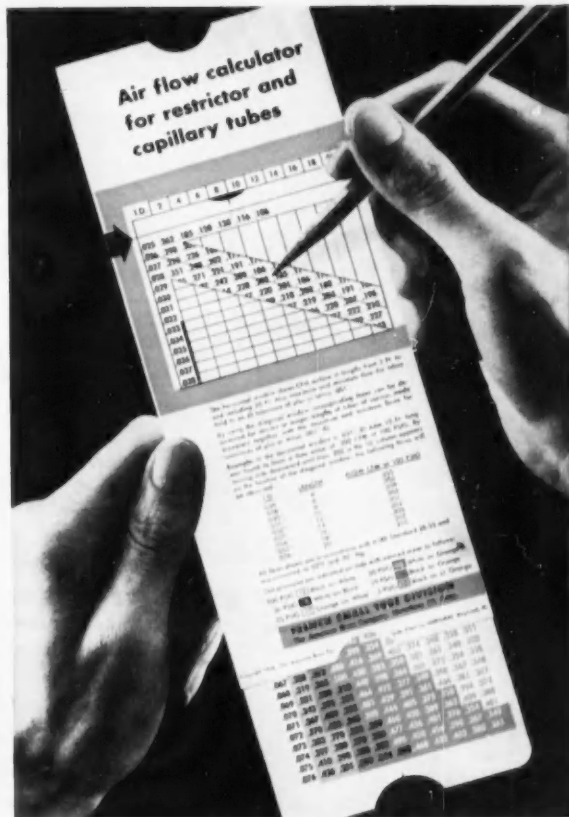
-solves tough problems in seconds. Free from Anaconda



**HOW YOU CAN QUICKLY DETERMINE FLOW VALUES:** Properly position the slide chart, and the horizontal window will show the flow values for tubes from .025" I.D. to .076" I.D. in lengths from 2' to 20' in multiples of 2'. Also shown will be the maximum and minimum air flows for the I.D. held to  $\pm .001$ ". Flow values are at stated P.S.I.G. test pressures in accordance with ASRE Standard 28-53 corrected to 60° F and 30" Hg.

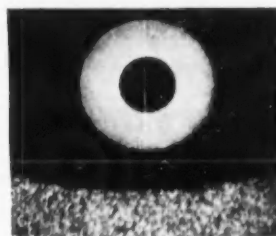
This new Anaconda calculator gives designers and engineers an easy way to determine air flow—and to quickly find corresponding air flow for other lengths. It's free. So write today on your company letterhead for your Anaconda Calculator. Address: French Small Tube Division, The American Brass Company, Box 1031, Waterbury 20, Conn.

**When you order Anaconda Restrictor Tubes** you are not limited to so-called standard inside diameters. You specify the air-flow limits you need for maximum performance in your equipment, or submit samples of tube which have the desired limits of air flow. All tubes shipped on your order are tested to meet mutually agreed on air-flow limits. 6758



**HOW TO FIND CORRESPONDING FLOWS:** Position the slide chart so that the known flow value for a tube of specific length appears on the hairline in the diagonal window. With minor adjustment of the slide, the calculator will show the equivalent flow for tubes in other lengths and inside diameters.

A cross section of an Anaconda Copper Restrictor Tube, .081" O.D. x .031" I.D., magnified 10X. Note the roundness of the bore.

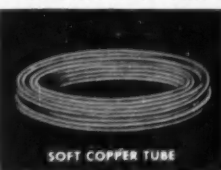


Section of a photomicrograph (200X magnification) to show smoothness of the bore.

## ANACONDA<sup>®</sup> RESTRICTOR AND CAPILLARY TUBES

Made by French Small Tube Division of The American Brass Company

ANACONDA PRODUCTS FOR THE REFRIGERATION AND AIR-CONDITIONING INDUSTRY



Circle No. 12 on Reader Service Card



We Like It, Too!

EDITOR:

I am very much intrigued by the phrase "Distilled Writing". I would

be very much interested in learning more about it. I read with a great deal of interest the brochure you sent out on this subject. As is the case with many people, my time for reading is limited, and I do object to the excess verbiage that exists in so many otherwise well written articles.

GEORGE J. ROCHE  
Roche & Hull, Inc.  
Baltimore, Md.

*Distilled Writing is more than a phrase; it's a way of expressing*

*ideas more concisely, a means of imparting the maximum amount of information in a minimum number of words.*

*The best way to learn more about Distilled Writing is to continue to read COMMERCIAL REFRIGERATION & AIR CONDITIONING. All copy for each issue of this magazine goes through this "distilling" process. The result: shorter, more readable articles; more pertinent information per column inch.*

#### Satevepost Author Supports CRAC's Survey Findings

EDITOR:

I'm delighted to see that your field studies as reported in the "I Tried To Buy Year-Round Air Conditioning" article in the November issue of COMMERCIAL REFRIGERATION & AIR CONDITIONING supported the conclusions I reached on the difficulty encountered in buying year-round air-conditioning.

I had originally said a lot more about the contractors, and some of it was pretty acid. It was probably just as well that we ran short on space and I had to delete my remarks.

ARNOLD NICHOLSON  
Associate Editor  
Saturday Evening Post

Editor Nicholson authored an article in the November 9 issue of the Post titled "We've Got the Weather Licked". Further reference to this article will be found on the "Let's Talk Business!" page of the magazine you are now reading. It seems he found it just as tough to buy residential air conditioning as did CRAC's own Dick Bracker when he made the field survey published in our November issue. Wouldn't it be interesting to learn all of what author-editor Nicholson had to say about air conditioning contractors?

#### Air Conditioning Benefits Must Be Sold To Users

EDITOR:

The entire air-conditioning industry should unanimously vote Thom Muir their heartfelt thanks for his comments in your October issue about the need for more intelligently directed sales effort at the user level. We at ARI are particularly pleased, since we have been hoping that sooner



The gasoline used in racing cars must be of the highest octane. However, even a small amount of water in the fuel line would cause motor trouble.

The same is true of refrigeration units. Water in the refrigerant will cause the unit to cease functioning. To avoid this, use Thawzone the moving dehydrant, because...

#### THAWZONE OFFERS OUTSTANDING ADVANTAGES:

1. Actually destroys moisture... not a mere anti-freeze.
2. Scavenges oxygen... helps to overcome the harmful effect of traces of oxygen which may remain in a refrigeration system after the usual purging.
3. Cannot cause pressure drop.
4. Does not release moisture when temperature changes.
5. May be used in units containing any of the "Freons", methyl chloride, methylene chloride or isobutane.
6. Costs only about 8 cents per lb. of refrigerant treated. Used in minute amounts.

Why don't you try a 1 oz. bottle of Thawzone?

Also available in 4 oz. and pint bottles.

Call your wholesaler.

HIGHSIDE CHEMICALS  
INCORPORATED  
(Formerly STEWART INDUSTRIES, INC.)  
4 COLFAX AVENUE  
CLIFTON, NEW JERSEY



Circle No. 7 on Reader Service Card

or later something would be done, presumably at the industry level, to tell the public of the benefits and services derived from air-conditioning equipment, regardless of the particular type or brand-name involved.

There has been an awful amount of money spent in advertising and promoting air-conditioning. Almost invariably, the copy is limited to presumably-justifiable claims of a manufacturer that his particular equipment has superior features, or to a somewhat-questionable emphasis on price.

Since it would be asking quite a lot of any individual manufacturer to devote the time and space he buys to the general promotion of air-conditioning, it would seem that only by collective industry effort can this be intelligently handled. We are trying our best to develop an interest in just that. Your editorial comments should be a tremendous aid.

GEO. S. JONES, JR.  
Managing Director

Air-Conditioning and Refrigeration  
Institute

#### Reprints of "Lousy Salesmen" Article Still in Demand

##### EDITOR:

Please advise me if reprints are still available of the article published in your May 1957 issue titled "Air Conditioning Men Are Lousy Salesmen".

JOHN TAXIS  
Sales Engineer  
Florida General Supply Corp.

*A limited number of reprints of this article, which has attracted wide interest and provoked spirited controversy in the industry, is still available. These reprints are priced at 10 cents each.*

#### Who Knows?

##### EDITOR:

Can you give me any information on who is supplying parts for "Frost-Air" Freezers? I am sure they are no longer in business but someone should be supplying parts.

ED. HORNAK  
P. and B. Supply  
Alpena, Michigan

*Can any reader shed any light on this matter?*

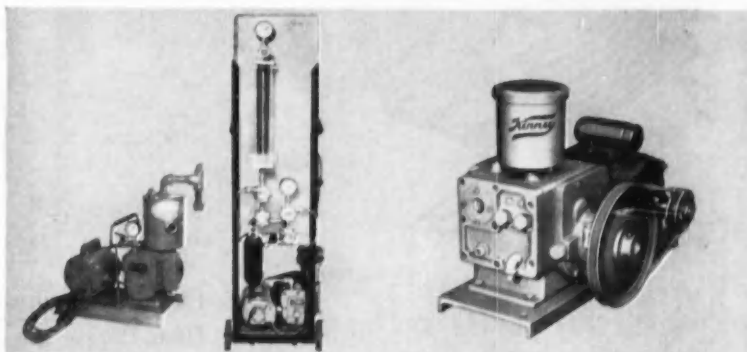
## Our "LOW PRESSURE" Selling Means Savings and Profits to YOU!

Whether your problem concerns a huge commercial refrigerating plant, the production of thousands of air conditioning units or the servicing of Mrs. Jones' refrigerator — there's one common denominator . . . VACUUM. Reducing the problem still further . . . the difference between waste and savings or profit and loss can well rest in your selection of THE right VACUUM equipment. There are sound reasons for the selection of —

# Kinney®

## HIGH VACUUM PUMPS

KINNEY offers the broadest selection of High Vacuum Pumps in the world — therefore you can select equipment that precisely meets your need. KINNEY Pumps give you the required high vacuum — *quickly, economically, positively*. Every KINNEY Pump is outstanding in dependability — calls for a minimum of maintenance — and, day after day, you can rely upon it to give you unfaltering service.



KINNEY Mobile Service Stations and Charging Boards give the Service Man the right tools to keep deep freezers, refrigerators and air conditioners "in the pink" and his own service operations "in the black."

KINNEY PUMPS range from Single-Stage Simplex and Duplex models producing ultimate pressures in the order of 10 microns, to Compound and Mechanical Booster Pumps producing pressures below 0.2 micron.

### WRITE

For full information on KINNEY High Vacuum Pumps and Refrigeration Service Equipment.

#### KINNEY MFG. DIVISION THE NEW YORK AIR BRAKE COMPANY

3618M WASHINGTON STREET • BOSTON 30 • MASS.

Please send me full information on

- ☐ KINNEY HIGH VACUUM PUMPS  
☐ KINNEY HIGH VACUUM CHARGING EQUIPMENT

Name \_\_\_\_\_

Company \_\_\_\_\_

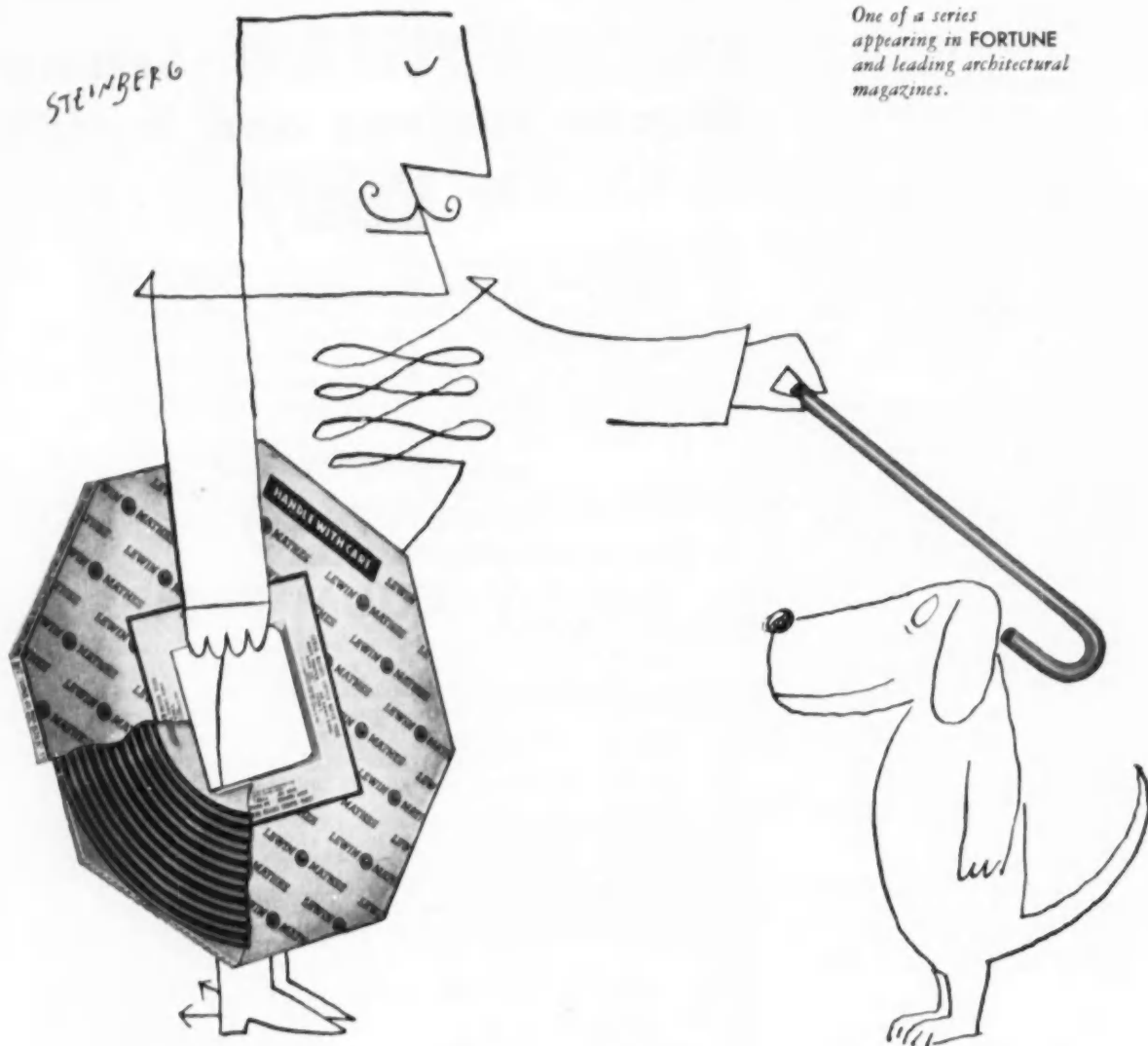
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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STEINBERG

One of a series  
appearing in **FORTUNE**  
and leading architectural  
magazines.



dogmatic

*Our plant is an obedience school for Copper.*

Here, Copper becomes pure, smooth and submissive . . . meets grueling tests for strength, tolerance and uniformity . . . acquires a high degree of authority as Lewin-Mathes Seamless Tube, Pipe and Rod.

With the dogmatic fervor of the ancient coppersmith, Lewin-Mathes remains the integrated *specialist* in its field. And our pride of product extends to our nationwide service facilities . . . second to none, we believe, in efficiency.

If you use Copper tube or rod in your product . . . or are planning to build . . . ask your designer or architect about Lewin-Mathes quality. It costs no more.

**LEWIN  MATHES**

**SAINT LOUIS, MISSOURI**

COPPER AND BRASS TUBE PIPE AND ROD  
DIVISION OF CERRO DE PASCO CORP.

***They'll want to finance it,  
so call in COMMERCIAL CREDIT***



**MAKE YOUR PROPOSALS COMPLETE**  
 . . . most of your prospects need their cash and usual lines of credit for current operations . . . make it easier for the prospect to sign on the dotted line by including financing arrangements. **COMMERCIAL CREDIT'S** Refrigeration Plan is backed by many years' experience, handling financing for thousands of commercial refrigeration and air conditioning installations. Let us show you how **COMMERCIAL CREDIT'S** method functions smoothly . . . saves you time and trouble. Over 300 offices assure fast service. Call our office in your city or write **COMMERCIAL CREDIT CORPORATION**, Commercial Credit Building, Baltimore 2, Maryland.

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over \$200,000,000 . . . offices in principal cities of the United States and Canada.

Circle No. 16 on Reader Service Card



GENUINE JOE SAYS:

## Cash in on REPLACEMENT MOTOR SALES!

When an old motor's too far gone for economical repairs...take the opportunity to sell a brand new replacement motor—and pocket the profit!

You save yourself time that can be used for other repair work. You make a substantial profit on a new motor sale. You give your customer super-fast service and the finest motor on the market.

Wagner makes it easy for you to cash in on this source of profitable business with the...

### WAGNER MOTOR MERCHANDISER

An attractive display stand, the Wagner Motor Merchandiser works as a silent salesman in your shop. It puts Wagner Motors out where your customers can see 'em...they practically sell themselves. It's chrome and cadmium-plated with a three-color sign at the top. You can get the Wagner Motor Merchandiser for just \$9.95 with an order of any 10 Wagner motors in one lot. Jet pump motors may be included.

Contact your Wagner branch now...stock up on the profitable line of Wagner Motors...and put the Wagner Motor Merchandiser on your sales staff.

MS57-6

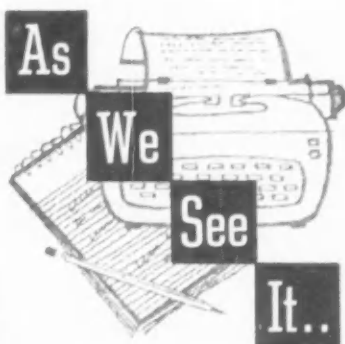
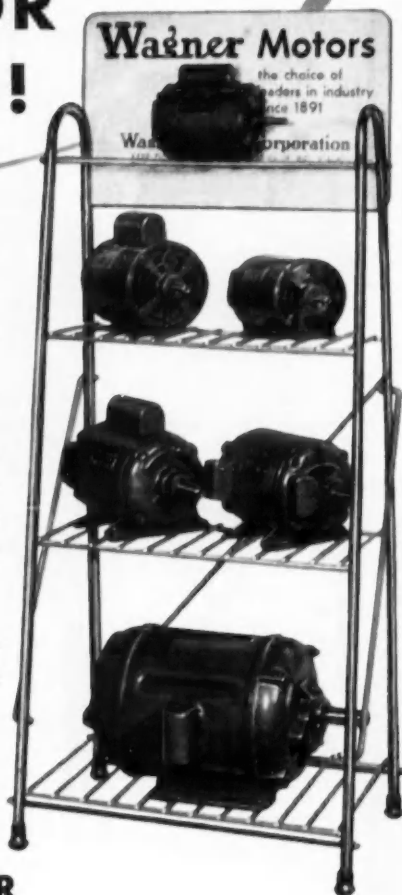


**WAGNER ELECTRIC CORPORATION**  
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

MOTORS • BEARINGS • STANDARD ROTORS  
BRUSHES • CAPACITORS • COMMUTATORS

OVER 950 AUTHORIZED SERVICE STATIONS OR PARTS DISTRIBUTORS

Circle No. 17 on Reader Service Card



If you're an average sort of person in the air conditioning and refrigeration business, you probably attend three or four trade shows a year, including regional meetings of your own particular industry group.

But did you ever stop to figure how many shows a manufacturer gets into — or could get into, if he were so inclined?

What started us thinking about this was a recent report from Foster Refrigerator Co. on its 1957 show activities. During the first six months of the year, the company reports, it exhibited in 30 shows. Plans called for exhibits in 25 more shows between Labor Day and Christmas. That figures out to better than a show a week, the year 'round.

If you went by an exhibit at the ARI Show and happened to catch one of the attendants yawning, he wasn't doing it because he was bored. Just tired.

• • •

**Selling's a tough business,** and we believe that anything that comes along to make things a little brighter for those who are in it merits a mention.

York-Detroit Contractors, Detroit refrigeration, air conditioning and heating firm, has come up with a new organization that ought to give salesmen—and everybody else who belongs to it—a spiritual lift as well as an "out" for every conceivable difficulty that comes along.

It's the "Loathe Lucifer Club", Lucifer being the guy who gets the blame for all the mishaps in our daily life. Membership in the

club carries with it "the unlimited right to gripe, complain and evade responsibility", as well as the right to blame Lucifer for "any foolish, irresponsible actions" on the member's part, and "any misfortunes which befall him".

We hope it works—but we'll know more about it after a few members have tried it out on the wife, and the boss.

\* \* \*

**We'll know more** about the present and future of commercial and industrial air conditioning when the figures are in from the most recent market survey undertaken by Du Pont's "Freon" Products Div.

Like its first two studies, which covered, respectively, room coolers and central residential cooling systems, the commercial-industrial survey is being made for Du Pont by W. R. Simmons Associates of New York City. About 2700 firms will be interviewed to get an accurate and projectable cross-section of business plans.

Manufacturing plants, office buildings, hotels and motels, retail stores and public institutions will be included in the survey. We'll report the findings when they are announced.

\* \* \*

**The idea that** women are the ones who need to be "sold" on residential air conditioning isn't always right. For instance, at the recent Congress on Better Living in Washington, some women said they wanted their homes air conditioned—the problem was to get their husbands to agree.

Their story was that being home all day, during the hottest hours, they felt the need for air conditioning. Hubby, however, coming home when it was cooler, didn't see it their way.

At one conference table, 8 out of 10 women said they'd be willing to pay as much as \$1,000 in addition to the cost of their heating system to air condition a \$20,000 house. The other two said they'd be willing to spend \$2,000 to cool off.

Our confidence in the future of

residential air conditioning has gone up again. If the ladies want it, they'll get it... no matter what their menfolks think.

\* \* \*

**Heat pump installations** are making news again. What's said to be the world's largest installation is now under way at Little Rock Air Force Base, Arkansas, where a 2½-ton heat pump unit is being installed in each of 1,535

housing units, along with all-electric kitchens.

A "Capehart" project for military family housing, it will be the first such project to be 100% electric.

Incidentally, those in the know expect the Capehart military housing program to die a natural death after next July 1. After that time, all housing for military families probably will be by appropriated funds, rather than outside mortgage funds as is the case under the Capehart program.

## THE COLD FACTS:

**More servicemen use driers filled with PA 400® SILICA GEL than with any other desiccant!**



**Here's why millions of pounds of PA 400 are in use today!**

- PA 400 driers adsorb as much or more moisture than any drier on the market.
- PA 400 has the highest reserve capacity of any refrigerant desiccant.
- PA 400 not only removes moisture that causes acid formation, but also removes acids already in the system.
- PA 400 is non-dusting, non-deliquescent and does not channel.

Progress Through Chemistry

**DAVISON CHEMICAL COMPANY**

Division of W. R. Grace & Co.  
Baltimore 3, Maryland

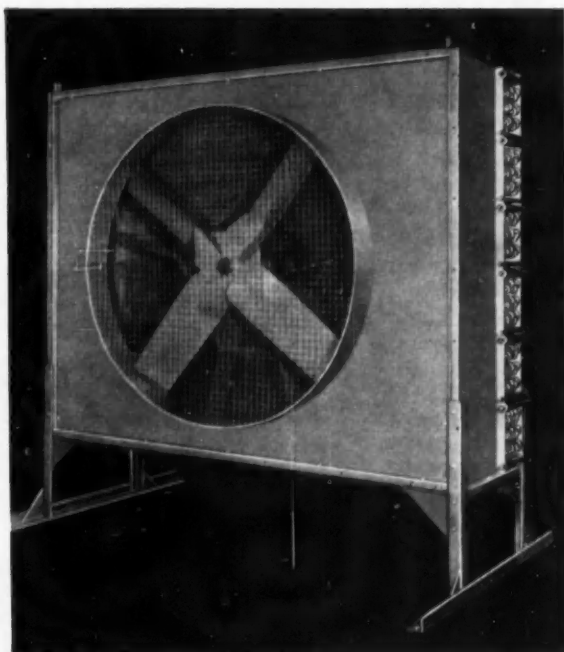


Producers of: Catalysts, Inorganic Acids, Triple Superphosphates, Superphosphates, Phosphate Rock, Silica Gels, Silicofluorides, Rare Earths and Thorium. Sole Producers of DAVCO® Granulated Fertilizers.

Circle No. 18 on Reader Service Card

9 - 11 - 15 - 20 - 25 - 30 - 40 - 50

**NOW...**  
**8 SIZES**  
**UP TO**  
**50 TONS**  
**In a Single Unit**



*McQuay* "AB" Belt Drive AIRCON

Remote, waterless condensers available in eight sizes, 9, 11, 15, 20, 25, 30, 40 and 50 ton nominal capacities in individual units with single fan and motor assemblies. Coils constructed of copper tubes with McQuay Ripple Fins. Lifetime ball bearing and slow speed propeller type fan.

**McQUAY AIRCON** *Air Cooled Condensers*

Here is the finest, the most complete, most versatile, the most efficient line of remote air cooled condensers on the market, as well as the largest available in a single unit. There are eight McQuay "AB" Belt Drive AIRCON Air Cooled Condensers from 9 to 50 ton nominal capacities. McQuay also offers the "AD" Direct Drive AIRCON Line of Air Cooled Condensers in 2, 3 and 5 ton nominal capacities. All McQuay AIRCONS are designed for multiple circuiting so that two or more separate refrigeration systems can be connected to the same condenser.

**PEAK PERFORMANCE ALL YEAR 'ROUND WITH  
"SEASONTROL" MODULATION.**

The McQuay "Seasontrol" modulates the condenser capacity in accordance with the weather for proper operation at all times. There is a McQuay representative in every principal city, or write McQuay, Inc., 1643 Broadway St., N.E., Minneapolis 13, Minn.

*McQuay* INC.



**McQuay**  
Means Quality

**AIR CONDITIONING  
HEATING  
REFRIGERATION**

Circle No. 19 on Reader Service Card

DECEMBER, 1957 • COMMERCIAL REFRIGERATION

# do all refrigeration jobs ...**FASTER, EASIER, BETTER!**



## with **DURO-CHROME** "MATCHED SET TOOLS"

With "Matched Set" Duro-Chrome Tools, every tool feels right. The natural grip and perfect balance make every tool seem "at home" in your hands . . . whether it's the Duro-Chrome Refrigeration Ratchet Wrench, Flare Nut Wrenches, Socket Sets, or any of the many other Duro-Chrome Tools specially designed for refrigeration service jobs. Your Wholesaler has them all. For the most Complete Line of Refrigeration Service Tools get *your* copy of the new Duro-Chrome Pocket Catalog that fits your pocket or your kit.

### Send for Catalog

Ask your Duro Jobber for a free copy, or send coupon to DURO, with 10c in coin to cover costs of postage and handling.



**DURO**  
METAL PRODUCTS COMPANY

2653 N. Kildare Ave., Chicago 29, Ill.

**DURO METAL PRODUCTS COMPANY**  
2653 N. Kildare Ave., Chicago 29, Ill.

Enclosed is 10c in coin for which please send me my personal copy of the Pocket Size Duro-Chrome Catalog.

Name.....

Company.....

Address.....

City.....Zone.....State.....

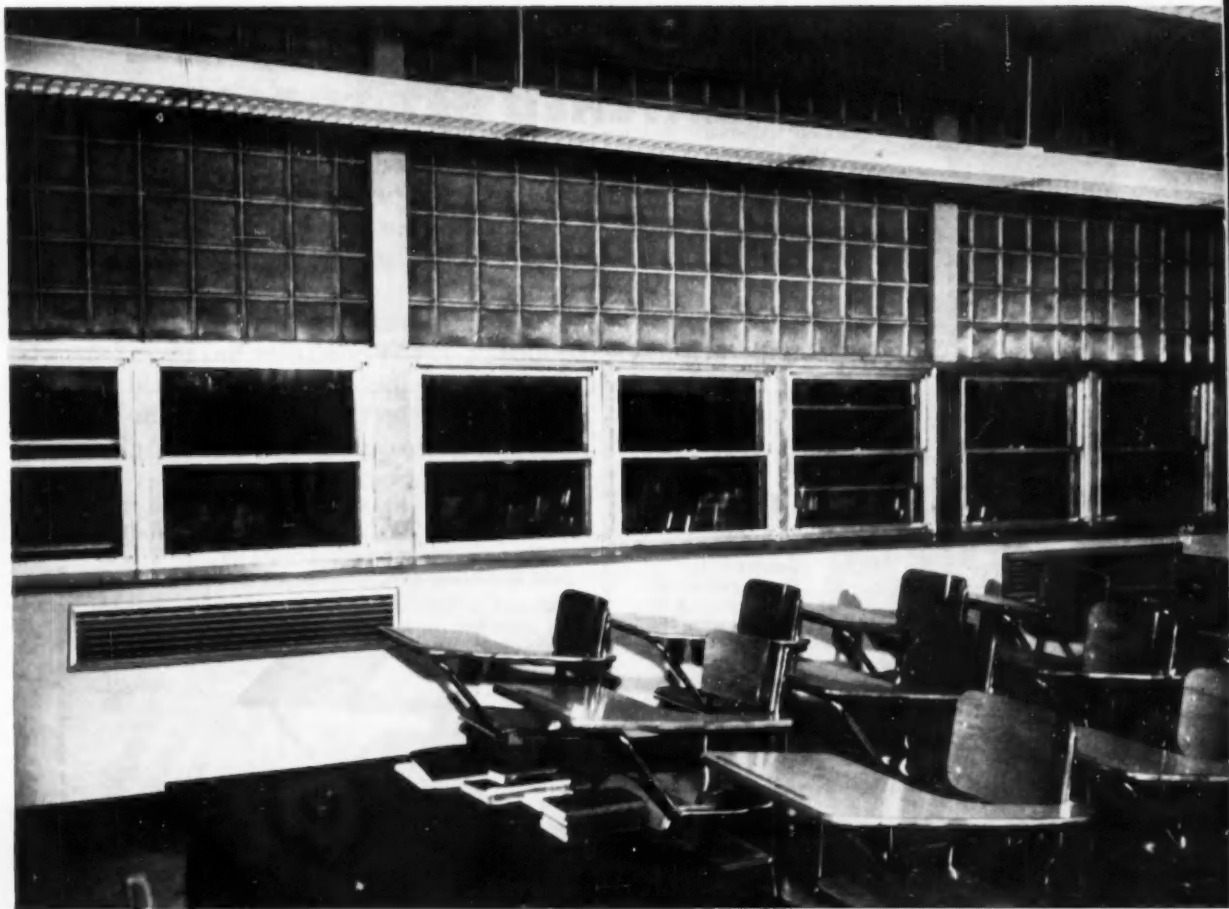
*Also makers of  
nationally advertised DURO Power Tools*

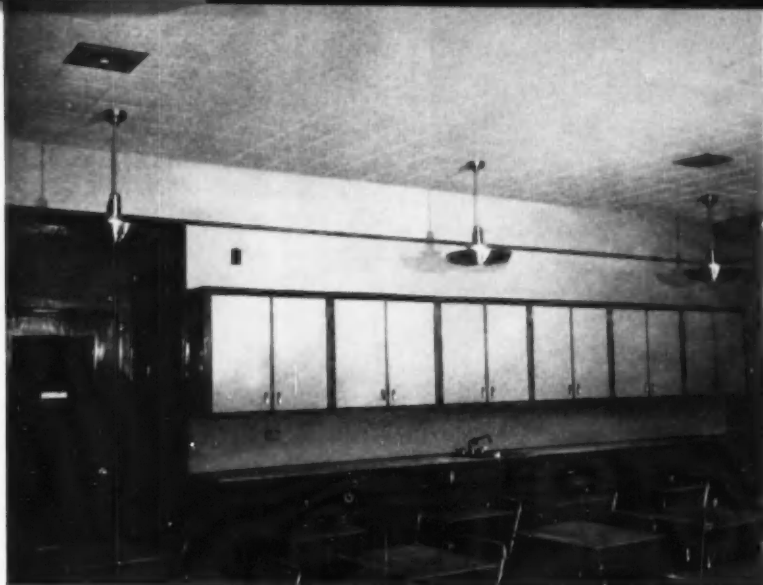
# **How high velocity provides maximum comfort for schools**

The *Anemostat All-Air High Velocity* system of draftless air distribution offers many important advantages for heating and ventilating schools. ● High velocity units, used with smaller than conventional ducts, save space and money. They substantially reduce sheet metal required, can be installed faster, at less cost. Since there are no coils in All-Air HV units, clogging and odors are eliminated. ● *Anemostat All-Air HV* operate entirely with air processed in the main equipment room; there is, therefore, no need to break through the walls of the building for prime air make-up. The *Anemostat All-Air HV* units eliminate fans, filters, and electric motors in the school rooms. Units are quiet, need a minimum of maintenance from custodians. ● On these pages are typical installations in which the *Anemostat All-Air High Velocity* system has been used successfully. Application data on your specific school heating, ventilating or air conditioning problem is available from Anemostat representatives or from the home office.

## **Architects— attention please:**

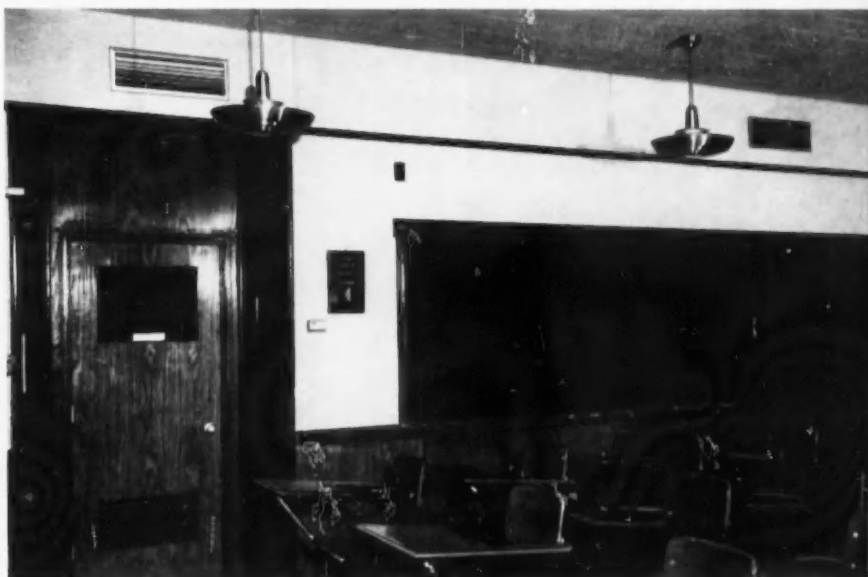
Anemostat round, square and straight line diffusers with high velocity units are adaptable to a wide variety of architectural designs.





In this schoolroom Anemostat Type E Square Air Diffusers are installed in the ceiling.

Here Anemostat SLW Straightline Air Diffusers on the high sidewall provide draftless comfort.



Note the Anemostat UTW Straightline Air Diffuser located under the window in this classroom.



Anemostat UTW Straightline Air Diffusers are placed under the windows in this school laboratory.



Write on your business letterhead for your copy of

### *New Anemostat Selection Manual 60*

to Anemostat Corporation of America,  
10 East 39th Street, New York 16, N. Y.

**ANEMOSTAT: The Pioneer of All-Air High Velocity Systems**

Circle No. 21 on Reader Service Card



MR. SHREVE of Shreve Mechanical Contracting checks new installation at National Jewish Hospital, Denver. Four 2½" diameter American Vibration Eliminators were installed on air conditioning unit to absorb vibration and noise in piping.

## "American Vibration Eliminators lick the vibration problem . . . protect our profit"

reports Mr. T. N. Shreve, Shreve Mechanical Contracting, Denver, Colo.

"American Vibration Eliminators are the best answer we've seen to the vibration problem in piping. First, they mean a satisfied customer. American VE's eliminate damage due to vibration. End customer complaints.

"Second, they lower our costs because we have to make fewer return calls. American Vibration Eliminators provide top service without maintenance. They protect our profit."

**YOU CAN USE AMERICAN VE'S  
WITH CONFIDENCE BECAUSE—**

**The right metal does the job.** The special tin-bronze alloy—the result of American

Brass metallurgical know-how—is tailored for the refrigeration and air conditioning industries.

**Double signal bronze braid where extra protection is needed.** On all American VE's 2½" O. D. or larger.

**Clean, dry, tested, protected.** Snip the end of the vaporproof polyethylene bag and you have a factory-fresh unit to install in the line . . . clean, inside and out!

**"American" quality materials,** construction, packaging mean less maintenance, prevent loss of costly refrigerants, etc. Specify the quality eliminator marked "American" on the ferrule.



Listed by Underwriters' Laboratories through sizes 3½" O. D.

For descriptive folder write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd.

**WHEREVER CONNECTORS MUST MOVE**

**AMERICAN**  
FOR AMERICAN VIBRATION ELIMINATORS  
SEE YOUR

**ANACONDA®**  
DISTRIBUTOR

# This **NEW** Manual Starter has EVERYTHING!



## NEMA Sizes 0 and 1

Two, three and four-pole construction

**SMALLER!** Takes less space, whether it's built into machine or mounted externally

**SMART STYLING!** Matches the streamlined appearance of today's modern machines

**QWIK-MAKE, QWIK-BREAK!** Positive snap-action opening and closing of contacts. Longer contact life

**TRIP-FREE OVERLOAD PROTECTION!** Impossible for operator to hold motor circuit closed against overload

**LONGER LIFE!** Toggle Action operating mechanism. Heavy-duty construction throughout

**EASIER INSTALLATION!** Wire it without removing starter from enclosure. All terminals have pressure wire connectors

## EASIER MAINTENANCE!

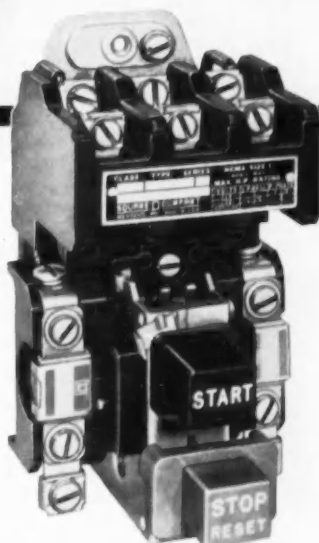
"Off-the-Shelf" parts kits make normal maintenance and modifications easier than ever. They're easy to buy, easy to identify, and faster to install

## TAMPER-PROOF!

Cover padlocking device prevents tampering by unauthorized personnel. Safety latch locks "start" button in "OFF" position

## VISIBLE INDICATION OF OVERLOAD!

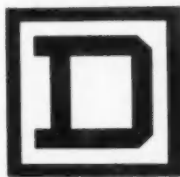
Self-centering push-buttons show when overload has occurred



## CHOICE OF ENCLOSURES:

Water and Dust-Tight  
Hazardous Locations  
Flush Mounting

Write for BULLETIN 2510 B-C  
Address Square D Company,  
4041 North Richards Street,  
Milwaukee 12,  
Wisconsin

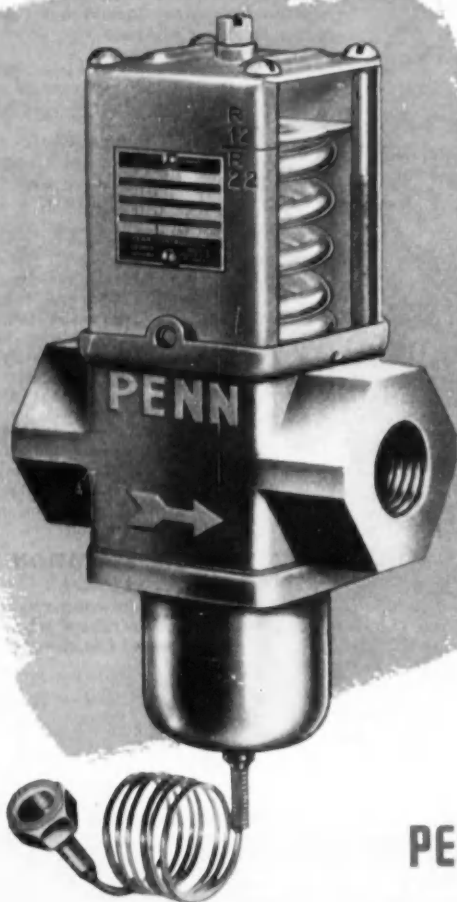


EC&M HEAVY INDUSTRY ELECTRICAL EQUIPMENT...NOW A PART OF THE SQUARE D LINE

# SQUARE D COMPANY

# NOW...USE ONLY ONE WATER VALVE

## FOR BOTH R-12 and R-22



### New Penn 246 ALL-RANGE Water Valve

Here is the refrigeration industry's *favorite* water valve . . . the Penn 246 . . . in a new ALL-RANGE model making it suitable for *both* R-12 and R-22 service! Your inventory is reduced yet you'll always have the right model on hand.

And remember, you get the same dependable features that have made Penn 246 water valves stay on the job longer . . . no valve chatter; no water hammer; no corrosion of sliding parts because water never touches them; easy manual flushing; highly sensitive yet accurate. Available in  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{3}{4}$ " sizes.

Don't settle for something "almost as good" . . . specify Penn ALL-RANGE water valves. Ask your wholesaler or write Penn Controls, Inc.

**PENN CONTROLS, INC.** Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES  
Circle No. 24 on Reader Service Card

## Let's Talk Business!

### It's Your Business -- Keep It that Way!

THE coincidence of the article appearing in the November 9 issue of the Saturday Evening Post titled "We've Got the Weather Licked" and our November article "I Tried to Buy Year Round Air Conditioning" points up some serious thoughts.

*Here is a direct quote from the Saturday Evening Post article — "I discovered an industry bubbling with ideas and new devices; a lot of perplexed plumbers and tinmiths, who are probably the world's worst salesmen; and people like myself, ready to buy a package of year-round climate when its advantages are understood and the price is within our means."*

The author goes on to outline the many frustrations experienced in trying to buy the product we represent. Here is a consumer publication printing additional proof of the lack of proper selling in our industry.

*Every man who has an investment in a retail organization that "sells" air conditioning products should take heed.*

The refrigeration, air conditioning and heating dealer/contractor has long held a strong trump card in his hand. This card has been his ability to assemble various products and components into an integrated system, and then to install and service them. The manufacturers have had no choice but to channel these products through such organizations that had this manpower and these facilities.

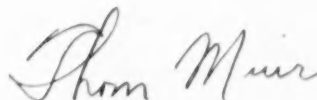
*The trend towards greater public acceptance of the product and its benefits, however, has made possible more and more packaging of product, eliminating much of the mystery of field installation. This will likely continue, particularly in those markets that indicate a possible high volume. Under these circumstances, the dealer/contractor's ability to assemble, install and service takes a subordinate position in the minds of the manufacturers producing the products.*

Because of their capital investment in plants capable of producing more and more of a given product to keep pace with increasing consumer demand, these manufacturers will be looking for retail organizations that can give them a fair percentage of the sales potential in any area. They realize that it takes creative selling to accomplish this. Hence the trend to packaged products may lead them to seek as their outlets these organizations that have demonstrated such sales abilities. To see such a pattern, just look back over the past four years in the room air conditioning business.

*But this needn't mean that any existing dealer/contractor organizations are forced out of the picture. Certainly it won't happen to you if you have the ambition and desire to make your company such a strong factor in selling product that the manufacturer does not have to look for new types of dealers in order to get his share of the market.*

You have a natural birthright in this business. Don't forfeit it simply because you fail to improve your ability to sell, while retaining your ability to install and service.

*Good luck and good selling.*



P.S.—From all of us to all of you, a very merry Christmas and a prosperous happy New Year!

**EDITOR'S NOTE:** *Thom Muir invites you to write to him regarding any sales problem that you might wish him to discuss. Address your letters to him in care of this magazine.*

# How 1958 looks to the DEALER

We asked dealers,  
for their opinions

## HOW DO YOU EXPECT YOUR 1958 BUSINESS TO BE?

	All Groups	Commercial Refrigeration	Air Con- ditioning	Engineered Equipment
Better than 1957	37.5%	31.4%	45.5%	41.7%
About the same as 1957	40.0%	42.9%	39.4%	25.0%
Not as good as 1957	22.5%	25.7%	15.1%	33.3%

## WHAT PRODUCTS WILL SELL BEST IN 1958?

Commercial air conditioners	52.5%
Food store refrigeration	51.3%
Frozen food cases	48.7%
Engineered refrigeration systems	43.8%
Engineered air conditioning systems	40.0%
Residential air conditioners	35.0%
Ice cube makers	35.0%
Industrial R & AC equipment	31.2%
Restaurant refrigeration	22.5%
Room air conditioners	11.3%
Water coolers	8.7%
Heat pumps	7.5%

How DOES 1958 LOOK to the men who are going to have to bring in the business?

To find out, COMMERCIAL REFRIGERATION & AIR CONDITIONING asked more than 200 leading distributors, dealers and contractors all over the country how they felt about next year's outlook in air conditioning and refrigeration. Here's what they told us:

77.5% of them believe their business will be as good or better than in 1957.

In air conditioning, they rated the following as one-two-three in '58 sales potential:

- Commercial packaged air conditioners
- Engineered air conditioning systems
- Residential air conditioners

In commercial refrigeration, top choices were:

- Food store refrigeration equipment
- Frozen food cases
- Engineered Refrigeration Systems
- Ice cube makers

More than a third of the firms answering the survey (37.5%) expected their business to be better in 1958 than it was this year. Most of them based their belief on the general business outlook in their areas. Two distributors, whose territories are largely agricultural, said that farmers in their areas had their first good crop season in five years, and that all business there was due for an upswing next year.

Several contractors, whose replies indicated they specialized in larger equipment, based their belief in an improved 1958 on the backlog of business already

booked. Still others said they expected to improve their profit picture next year by better management and closer attention to operating details.

Of the firms who thought their business next year would be about the same as in 1957 (40%), the principal reason given was tougher competition for the customer's dollar, and a general levelling of economic conditions in their territories. One distributor said that the normal growth of air conditioning sales in his area had been stunted by two cool summers in a row. He hopes for an early hot spell to keep his volume at its 1957 level.

Tight money conditions, high inventory carry-over and a drop in construction activity in their areas were the principal reasons given by the firms (22.5%) who don't expect business to be as good next year.

One contractor, however, said he expected a drop in 1958 because "our 1957 business was so good we can't reasonably expect 1958 to be better".

It may be significant that firms whose principal business is air conditioning are somewhat more optimistic about 1958 than are those whose basic volume is in commercial refrigeration.

45.5% of the air conditioning firms covered in the survey expect next year's business to be better; only 15% think it won't be at least as good as 1957.

In commercial refrigeration, while 31.4% look for an upswing in 1958 sales, 25.7% don't think they'll do as well as this year. The decline in smaller independent food stores and a growing practice among

# distributors and contractors all over the country on next year's business. Here's what they told us:

## WHAT WILL BE YOUR BIGGEST SALES PROBLEMS?

Price cutting	65.0%
Tighter credit	53.8%
Lack of good salesmen	51.3%
Too many competitors	28.7%
No customer money	27.5%
Weather	13.7%
Prices too high	13.7%
Finding prospects	6.3%
Poor products	3.8%

## WHAT ARE YOU GOING TO DO ABOUT THEM?

Sell harder	66.3%
Better management	62.5%
More sales training	47.5%
Better service	45.0%
Hold line on prices	33.8%
Hire more salesmen	20.0%
Easier credit terms	20.0%
More ads and promotion	18.7%
Better display	8.7%
More dealers	5.0%
Fewer dealers	5.0%

chains to buy direct from the manufacturer probably influenced this latter opinion.

Although weather unquestionably will be an influence in next year's business, only 13.7% of those answering the survey listed it as one of their major problems. On the other hand, a thumping 65% expected price cutting to be a continuing plague; and more than 80% expected money problems—a combination of tighter credit and lack of customer money—to be obstacles to '58 sales.

A shortage of good salesmen (mentioned by 51.3%) and too many competitors (mentioned by 28.7%) were other potential trouble-spots listed.

How do dealers plan to meet and beat these problems? Besides the to-be-expected answer, "sell harder", an encouraging number (62.5%) said they expected to do it by better management methods. 47.5% said they planned to step up their sales training activities, and an almost equal number (45%) indicated they were going to give more sales-emphasis to their service facilities.

Some of the comments that accompanied the returns, while they represent only one company's opinion, may be of interest in gauging how the dealer-distributor-contractor groups view 1958:

"We're increasing our office staff to relieve our salesmen for field sales work." (Distributor)

"We're going to begin weeding out poor dealers, and upgrading the better dealers." (Distributor)

"We're going to a smaller sales staff, a lower advertising budget, and a more efficient operation, to

get higher profit on a lower volume." (Contractor)

"Next year we'll extend our present 36-month financing plan to 60 months." (Dealer)

"We'll improve the quality of our dealer organization by a vigorous sales training program." (Distributor)

"We're going after the chain store business, even if it's only the installation and not the sale. We're also improving our used equipment display." (Dealer)

"We are going to try to increase the number of lines bought direct from the manufacturer, and emphasize in our sales work the importance of local service to the customer." (Contractor)

"We're switching our service and repair work to a 'cash only' basis." (Dealer-Contractor)

"We intend to take it easy in '58 and hope that contractors selling below their cost will battle it out and some of them will fail." (Contractor)

Firms answering the survey classified themselves as follows:

Dealers	31.2%
Distributors	32.5%
Contractors	35.0%

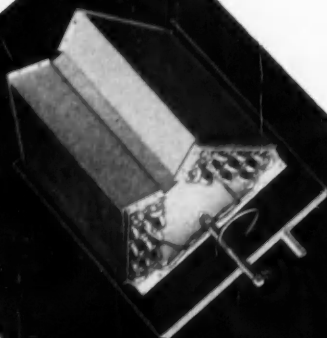
Significantly, 42.5% listed service as a function in addition to their principal industry category.

As to their principal type of business, replies indicated this to be:

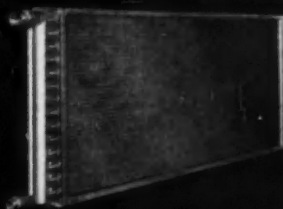
Commercial refrigeration	43.7%
Air conditioning	41.3%
Engineered equipment	15.0%

SO HALSTEAD & MITCHELL ENGINEERS ASKED ...

RESIDENTIAL  
V-TYPE  
EVAPORATOR



STANDARD  
STEAM COIL

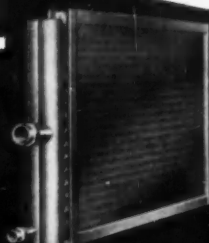


## WHICH TURBU-FLO COIL MEETS YOUR REQUIREMENTS?

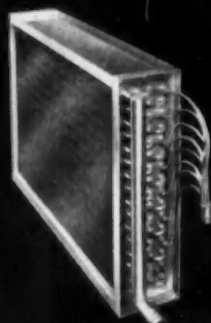
NON-FREEZE  
STEAM COIL



WATER COIL  
(CHILLED OR HOT)



DIRECT  
EXPANSION  
COIL



Halstead & Mitchell coils with Turbu-Flo fins are designed for rugged and long service life. And Turbu-Flo provides up to 15% more heat transfer capacity.

STEAM COILS are available in both standard and non-freeze types. WATER COILS are for use with chilled or hot water. DIRECT EXPANSION COILS are equipped with a pressure type distributor and circuited for minimum refrigerant pressure drop . . . will accommodate any make expansion valve, refrigerants 12 or 22. All coils are regularly available in from 1 to 8 rows deep, in finned heights of 12 to 36 inches, and in lengths up to 10 feet. Manifolding can be arranged for left, right or opposite-hand connections. Other sizes or special coil types can be provided to meet your specifications.

### EXCLUSIVE, EFFICIENT TURBU-FLO

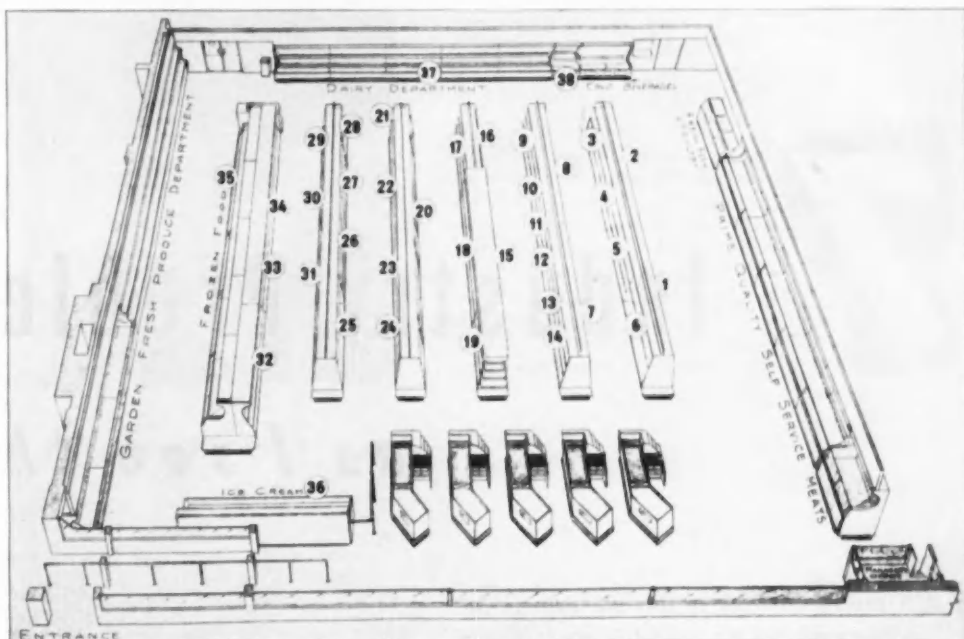
All coils feature the exclusive Turbu-Flo fins. Streamline design creates better air wash, lowering air film resistance and improving heat transfer; yet friction is at a minimum.

Turbu-Flo fins are made of aluminum (available in copper), mechanically bonded to seamless copper tubing.

Casings are of heavy gauge steel fully protected against corrosion or of heavy gauge aluminum. Surrounding flanges simplify ductwork installation.

Write for more specific information, delivery and prices. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.





**HIGH LEVEL**, three-point perspective drawings like this virtually lift the roof off a proposed new food market, so that the prospect can see not only the way the store is laid out but also the way the dealer suggests stocking it.

# BIRD'S-EYE PLANNING

*boosts complete food market sales*

**Giving a prospect the best possible look at his proposed new market is the best way of clinching the deal**

WHEN YOU'RE SELLING complete food market installations, it's important to give your prospect the clearest possible picture of what his store will look like when — and if — it is completed according to your plan.

The better you can visualize for him this finished look, the better are your chances of closing the deal and getting his name on the dotted line.

Recognizing the full importance of this visual impact, the S. & M. Schwartz Co., Div. of Straus-Duparquet, Inc., New York City, has adopted a prac-

tice of preparing for all of its complete-store prospects a "bird's eye" prospective drawing of the completed layout.

This drawing virtually lifts the roof off the food market in question, giving the owner a graphic view of the entire interior from a vantage point above and outside the store. It gives the market operator a far better idea of what his new store actually will look like than does a simple plan drawing, or even a floor-level perspective.

Carrying the store planning a step further, each of these high-level, three-point, perspective drawings is keyed with a series of numbers. These numbers, identified on a table included with the drawing, indicate the recommended stocking of the various sections of shelving and fixtures for maximum merchandising effectiveness.

The "bird's-eye" drawings certainly take more time to prepare than do straight plan views, Milton I. Schwartz, executive vice president of the firm, freely admits. He insists, however, that in terms of completed sales this added expense is more than justified.



# Industry Problems

*as I see them...*

**I**T'S pretty obvious to anyone who is familiar with the air conditioning industry that the industry has problems. Like most people who have been associated with this business for a long time, I not only am acutely aware of these problems but also I have formulated some rather definite opinions as to what should be done to cure them.

For what it's worth, here is my analysis of the seven most important things the industry needs to do to place itself in a position to realize its full potential. These objectives are not necessarily listed in the order of their importance, but the accomplishment of any or all of them would benefit the industry as a whole.

## **1 Improve both selling and sales promotion techniques.**

Individual experiences of all of us, plus such things as the DuPont survey and the "I Tried To Buy Year-Round Air Conditioning" article in the November issue of COMMERCIAL REFRIGERATION & AIR CONDITIONING, seem to show that our products have not had the benefit of a good selling job at the user level.

I think we should consider the lack of style appeal in our products. Room air conditioners don't look too good, and central air conditioning units look like nothing at all. Yet, when we try to sell air conditioning to the home we are competing with drapes, furniture, carpeting, and modern kitchen and bathroom fixtures that are attractive as well as useful.

A lot has been said and written about going back to "knocking on doors" as a means of stimulating business. I don't think we ever turn back to old ways of

living or doing. More and more, all industry today is turning to mass selling, and we should keep this in mind when appraising our own sales methods.

A man who has air conditioning in his own home certainly should make a better salesman than one who doesn't. A continuing program in this direction for manufacturers, distributors, dealers, and salesmen seems to be called for. Put the kids in air conditioned schools and watch the residential air conditioning sales curve soar. The kids will pressure their parents into providing at home the same benefits they enjoy in school.

## **2 Establish standards of good cooling and good heating.**

Most people simply do not know what good cooling or good heating is. The only way most people get any information on this subject is from a dealer, who may or may not be a good dealer. In the absence of any standards of comfort and satisfaction, the purchaser is at the mercy of the dealer.

In order to accomplish this objective, manufacturers first need to agree among themselves on what constitutes good air conditioning, and then tell the public in an understandable way — over and over again.

## **3 Create more dealers and see that they make a profit.**

The turnover in dealers is terrific. It used to be 25% annually among key dealers, and is no doubt still that high. The practice of pirating another manufacturer's dealers is expensive and wasteful. It often results in dealers handling several lines and not doing a really good job on any one.



*Mr. Black has been associated with the refrigeration and air conditioning industry for more than 30 years. Starting with Frigidaire, he later spent 13 years with Airtemp, where he was serving as manager of advertising and merchandising when he left to become a vice president and sales manager of Perfex Corp. Since 1952 he has been vice president of Grant Advertising, Inc., Dayton, Ohio.*

• • • • • by Vincent P. Black

The manufacturer should find out how a dealer can operate his business at a profit and then broadcast this information so that all of his dealers can check their operations and correct their weak practices. This is not an easy job but it can be done.

4 **Organize research, then broadcast the results.**

A few individual companies have sponsored research programs to probe the benefits of air conditioning, but the results of these programs have not been widely circulated and have been generally discounted by competitive firms.

Further authoritative information on such subjects as allergy relief, lengthened life span due to slower heart action in hot weather, prevention of cross-infection at home and at work, and effect of smoke and dust in lung cancer would benefit the industry as a whole and should be impressed upon prospects through every possible medium of public education.

5 **Sell all the benefits of air conditioning, not just cooling.**

So long as we let people think that air conditioning means only cooling, we are going to be largely dependent upon hot weather to get people to buy.

The concept of better health is valid, because air conditioning can do much to protect mankind from the hazards of a Los Angeles smog, from increased heart activity, and even from the potential danger of radioactive fallout.

Clean air also can be the basis for a strong sales story. It means less dirt, less housework for the housewife; less wear on delicate machinery and instruments for industry; lower maintenance and re-decorating costs for both.

6 **Establish standards of product capacity and performance.**

This has been done on heating and a start has been made on cooling. Very few people in the air conditioning industry believe in the honesty and integrity of ratings of other manufacturers — and not without reason.

A standard for room air conditioners has been agreed upon, but we still need some means of checking compliance with this standard. Also, we still need standards for the other phases of the industry.

Here's another thought. A Btu is a pretty small measure of heat measurement, and it certainly is not very well understood by the buying public. I don't profess to know the answer, but there must be a better, more understandable way of expressing equipment capacity.

7 **Failure-proof the product more, and make it more automatic.**

I have the feeling that no one wants to be a serviceman (and I've been one myself), because always dealing with trouble is a depressing thing. The customer is usually irked because the product doesn't work; the service manager usually demands that the job be done more quickly than is possible; and the manufacturer (if the equipment is still in warranty) usually tries to find some reason other than manufacturing defect for the failure of the equipment.

To be successful today a product must be as nearly automatic as possible. Such things as power brakes, power steering, power window lifts, and garage door openers prove people will spend substantial sums to get things that are automatic. Factories have machines that automatically indicate when they are not running properly; some of these same ideas can be applied to heating and cooling equipment.

# PLANNED DEFROSTING

## will boost cooling efficiency

Frost build-up on cooling coils reduces heat transfer rate, cuts system efficiency, raises operating costs. Here are some ways to lick it before it causes trouble.

FAST AND RELIABLE METHODS for defrosting refrigeration evaporators are a big help in maintaining proper temperatures in refrigerated areas without excessive operating costs.

Frost on the surface of cooling units serves as an efficient — though unwanted — insulator, cutting down the rate of heat transfer between the refrigerant in the coil and the air to be cooled. As this frost builds up, required room temperatures can be maintained only by increasing compressor capacity and operating the system at lower suction pressures. This is especially true in sub-freezing applications.

Furthermore, frost and ice are heavy (6 to 58 lbs. per cu ft.). Excessive accumulations on cooling surfaces can throw dangerous weight loads on hangers and wall or ceiling structures supporting the evaporators.

Planned defrosting gets rid of the frost before it causes trouble. It will save more than it costs. It reduces operating costs by making possible full-scale operation of the system without overloading the refrigerating machinery. This means less wear and tear on the equipment, fewer service calls, longer equipment life.

The best way to defrost depends upon the type of evaporator and where it is located.

Scraping the frost off the coils — while often expedient — is the worst way of defrosting. You can't get it all off, and it's hard work, even with special tools.

Direct expansion and flooded-type coils are readily defrosted by pumping hot gas through them (Fig. 1). This hot gas is carried through a separate piping system from the discharge side of the compressor to the evaporator. It should enter the coil close to either the suction or liquid valve.

The hot gas must always flow down through the coil to ensure removal of entrapped oil and other fluid contaminants. So on a bottom suction coil connect the hot gas line near the liquid valve; on a top suction coil connect it near the suction valve.

To defrost with hot gas, first pump the evaporator coil reasonably dry of active refrigerant. Close off the suction and liquid valves, then open the hot gas valve and build up pressure until a minimum of 50 psi is reached. Circulate the hot gas, condensed gas, and entrapped oil by cracking the valve on the opposite end of the coil. Let just enough hot gas flow to maintain the minimum pressure and remove the accumulated liquids.

When circulation is from the evaporator into the liquid line, provide suitable valving to direct the flow to a trap or another evaporator for the separation of refrigerant and removal of oil. If the circulation is into the suction line, regulate the flow so as not to overload and damage the compressor.

If suitable trapping is not provided, oil drawn back to the compressor in this manner may be recirculated with the liquid refrigerant and cause a dampening effect on the entire system. The hot gas must circulate rapidly, particularly in a low temperature coil, to prevent it from condensing and accumulating in sufficient quantities to choke up the coil and halt the defrosting.

Circulating brine coils may be defrosted by flushing with a continuous non-freezing spray or by warming the brine in the pipes, the choice depending upon circumstances.

In sharp freezers or rooms held below freezing, defrost the coils by heating the brine in a centrally located tank and carrying it to the coils by a separate pipe line. Another way is to hook up the coil by means of unions and flexible hose to a portable auxiliary brine heater equipped with a pump and electric heating elements.

Where relative humidity must be controlled and where spraying is not advisable, defrosting can be accomplished by recycling the brine in the coils. The refrigerant is recirculated until it gets warm enough to melt off the accumulated frost and ice. Automatic

*Continued on page 70*

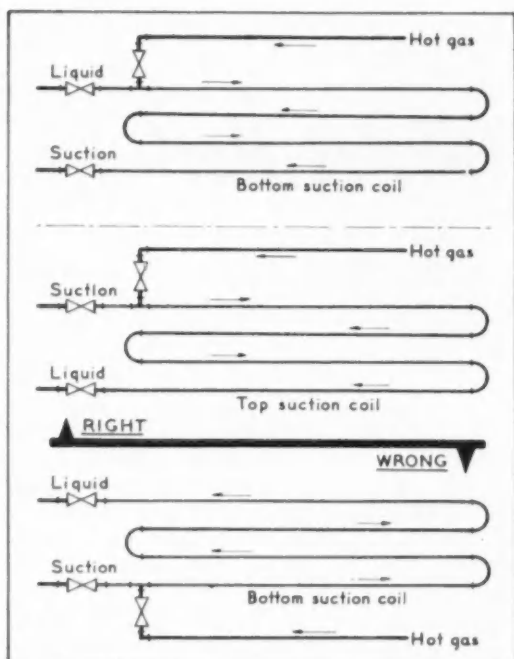


FIG. 1—Right and wrong way to hook up gas recirculating lines to defrost direct expansion and flooded type coils.

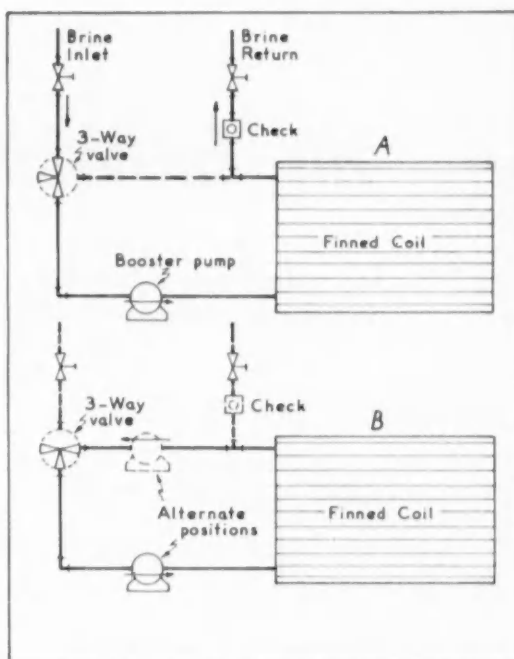
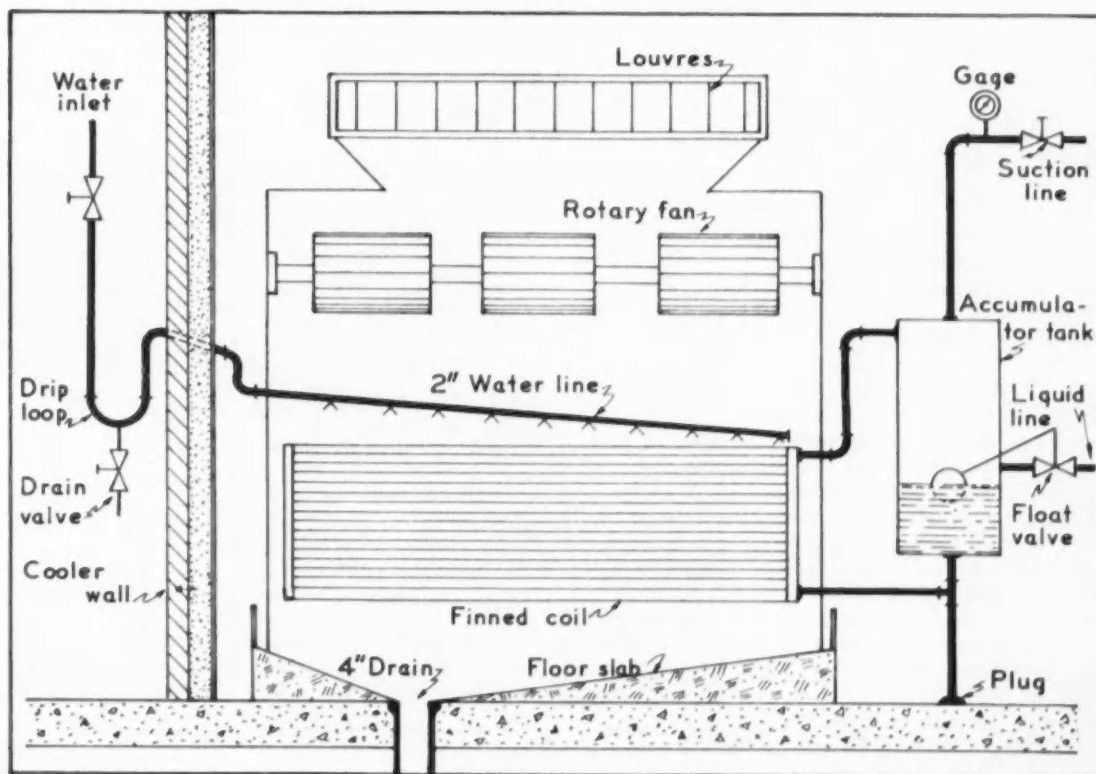


FIG. 2—Booster pump in brine line circulates brine through coil; (A) normal circulation, (B) defrosting flow.

FIG. 3—Water line provides defrosting spray over coils in unit cooler operating at  $-50^{\circ}\text{F}$ . Drip loop is located outside the refrigerated area to prevent freezing. Water line is installed with sufficient slope for ready drainage.



# Hit 'Em While They're Hot!

**This automobile air conditioning dealer uses radio spots to get his sales message to traveling men when they are most receptive**

THERE ARE MANY WAYS to spend your advertising dollars, but when you find the right way increased sales are bound to result. H & S Auto Refrigeration Co., Phoenix, Ariz., is convinced that it finally has found that right way—a timely radio spot commercial.

Owner Joe Stearns has discovered that a three-minute radio spot, which explains the benefits of automobile air conditioning, can be heard by the traveling salesman or businessman in his car just at the time when he probably would welcome cooler surroundings.

When the company went into the car cooling field about four years ago, its initial promotional effort was a newspaper advertising program. The advertising budget later was spread over several fields.

A direct-mail program was started which consisted of a single letter personally written to every car buyer registering for Arizona license plates. Newspaper advertising was used once every two weeks throughout the year. The ads played up the 110 and 115-degree temperatures to be expected in the summer months.

Although the company investigated the possibilities of radio commercials, it was several months until it tried them. Then the company contracted for a series of three-minute announcements to be aired at 5 p.m. "This is the time when most salesmen are heading home after a day on the road; when they are most jaded by the combination of heat and fatigue," Stearns reasoned.

When in 1955 the firm finally decided to go all out for the radio spots, total sales that year showed that more than two-thirds of the installations were performed for traveling salesmen or other businessmen. Most of those buyers, according to Stearns, had heard the company's radio advertisements.

More than 85% of the company's advertising expenditures now is allocated for radio time. The remaining portion of the advertising budget goes into more new car registration follow-ups.

Proof of the effectiveness of the radio spots was seen the first summer they were tried, when the firm's entire stock of units was

sold by mid-July. Thanks largely to the radio advertising, Stearns believes, sales have continued to boom since then. For example, sales for 1955 totaled well over 500 units. In 1956, sales jumped 50% over 1955, Stearns reveals, and will show another 50% gain this year over 1956.

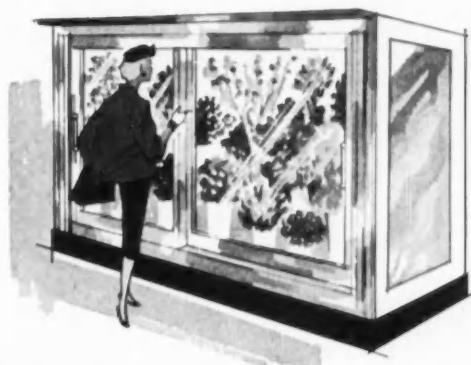
The sales message of the radio commercial is short and to the point. The listener is asked whether he is driving on a hot road. Next he is asked if he realizes that \$365 and a few hours can transform the interior of his car into a pleasant refuge from even the most intense desert heat.

Enthusiastic testimonials from

*Continued on page 78*



**"HOP IN AND LET'S GO FOR A SPIN."** That's the invitation that Joe Stearns uses for a clincher on reluctant prospects. A ride around the block in an air cooled car on a hot day usually does the trick.

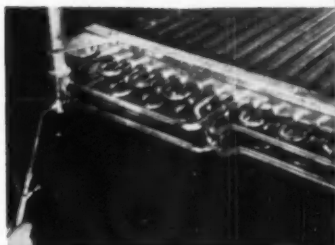


JOIN WITH HANDY & HARMAN SILVER BRAZING FOR PERMANENT PROFIT

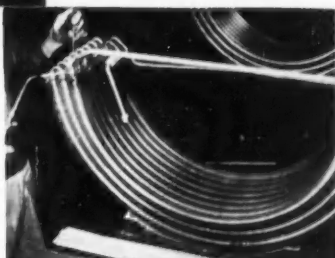
Operator brazing copper return bends on TV 210 Evaporator. Used in "L" Thermobank Defrosting System. Operator sets up and brazes 38 joints with SIL-Fos 5 in 30 minutes, using oxyacetylene fuel.



Brazing "Unicon," Air-Cooled Condenser, Model BD 3200 Coil. Each assembly has 40 joints at each end. Brazing time with SIL-Fos and oxyacetylene fuel, including setup time: 1 hr. 15 minutes.

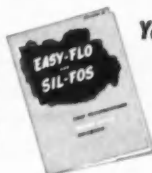


C-208, Large Corvette. Brazing heat exchanger and distributor to coil. Used in evaporators for meat storage and other applications. Each end has 24 joints brazed with SIL-Fos 5.



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It tells you why and how high speed, strength and economy are inherent in silver alloy brazing. Gives information on joint design and brazing methods. A copy is yours for the asking.



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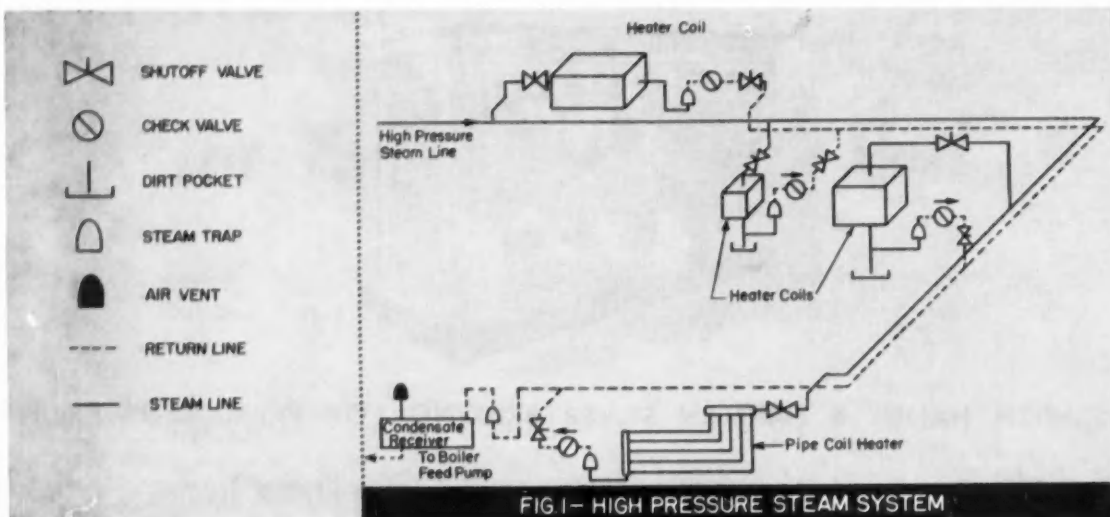
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PROVIDENCE, R. I.  
CHICAGO, ILL.  
CLEVELAND, OHIO  
DETROIT, MICH.  
LOS ANGELES, CALIF.  
SAN FRANCISCO, CALIF.  
TORONTO, CANADA  
MONTREAL, CANADA

## How Kramer Trenton Produces Complex Assemblies at Low Cost . . . BRAZING WITH SIL-FOS 5

First a SIL-Fos user and now a SIL-Fos 5 booster, Kramer Trenton Company puts this economy brazing alloy to work on a wide variety of refrigerating and air-conditioning components with gratifying success.

The outstanding performance of Kramer Trenton units in the field can be traced right back to good shop practices, quality materials and expert workmanship. In the brazing operation, they know they can depend on SIL-Fos and SIL-Fos 5 to give them sound, leak-tight joints for the life of the equipment. They know, too, that the SIL-Fos alloys are uniform in melt and flow characteristics, give instant penetration and provide smooth fillets. These and other benefits quickly add up to maximum production at minimum cost.

Handy & Harman field engineering service stands behind every ounce of brazing alloy we produce. Call on us for the help you need in designing for silver alloy brazed construction or in applying Handy & Harman alloys to your production requirements. We will work with you all the way.



what every contractor should know about

## Basic Steam Heating Systems

THERE IS NO SLACK SEASON in the air conditioning service business for the contractor who is qualified to render all year service and assume responsibility for keeping heating equipment, as well as cooling equipment, operating at peak efficiency.

Steam heating facilities form an integral part of many air conditioning systems, so it is important for any contractor planning to provide year-round service to have a thorough understanding of the basic types of steam systems and of the function and operating characteristics of their various elements.

Steam systems are divided into four groups, based upon pressures at which they operate:

(1) **High pressure systems**, which operate at pressures above 15 psi.

(2) **Low pressure systems**, which operate at pressure less than 15 psi.

(3) **Vapor systems**, which operate at or near atmospheric pressure and return condensate to the boiler by gravity.

(4) **Vacuum systems**, in which return lines—and often supply lines also—operate at less than atmospheric pressure. A vacuum pump is used to maintain sub-atmospheric pressure.

The high pressure system is illustrated in Fig. 1. High pressure heating is limited to buildings where high pressure steam is produced for other purposes or where it is available from a district system. It would be uneconomical to design a high pressure system for heating only except in a very large building. Even in large buildings it is common practice to reduce high pressure steam to a value suitable for one of the other systems.

Radiators, heaters and coils can be located either above or below return lines in high pressure sys-

tems, since pressure difference between supply and return is sufficient to lift condensate.

Steam traps are used to retain steam in heating units until it gives up enough heat to condense. They should return only water to the return lines. If pressure is reduced in the return line, hot water may flash into steam, giving a false impression that steam is passing through the traps. Traps used in high pressure systems are usually bucket, float or impulse types.

Check valves are used to prevent back-flow of condensate or flash steam into heating units. Air vents are used to permit escape of air from the receiver and other points where it might interfere with circulation or heating efficiency.

Dirt pockets, consisting of a pipe nipple and cap, are often placed at the bottom of vertical lines. Line strainers may precede traps to prevent solid matter from

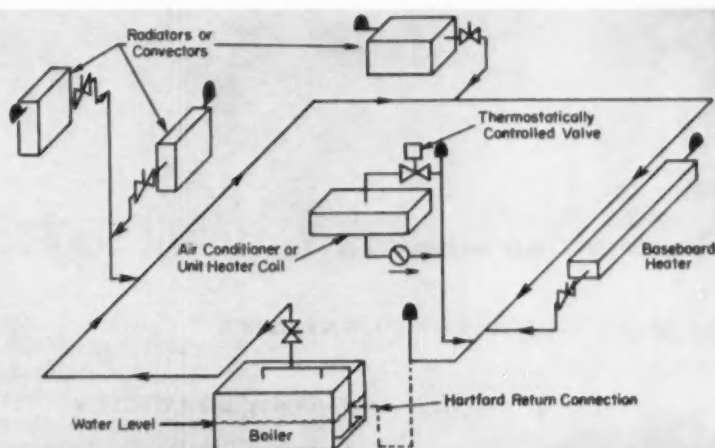


FIG 2- ONE-PIPE STEAM SYSTEM

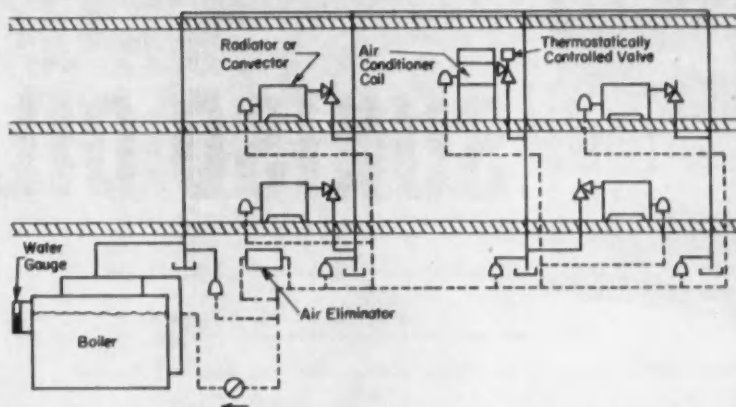


FIG. 3- TWO-PIPE STEAM SYSTEM

interfering with their operation. Dirt pockets and strainers should be cleaned at least once each season where scale formation is a problem.

**CAUTION:** In servicing high pressure equipment be sure to shut off both supply and return lines to equipment that must be opened or disconnected. If there is doubt as to location of shutoff valves, shut off supply and return mains and vent the system.

Remember that equipment may contain water or steam at a temperature above that of atmospheric steam. Such water will flash into steam when pressure is reduced. Let equipment cool down before open-

ing, and loosen unions or caps slowly. Failure to observe these precautions can result in serious or fatal accidents.

Many heating service procedures are common to all high and low pressure systems. For this reason, service instructions for all systems will be considered together. Their application to different pressures will be pointed out.

Low pressure piping systems fall into two general classifications: (1) One-pipe systems, and (2) two-pipe systems.

The one-pipe system (Fig. 2) utilizes mains, risers and branch lines both to carry steam to heaters and return condensate to the boiler. Condensed water falls to the bottom of horizontal lines and

by Edward Dowis

flows by gravity to the boiler return. Steam, occupying the upper portion of the pipe, flows in an opposite direction to heaters or radiators.

The loop connecting steam and water compartments of the boiler keeps pressure equalized so that water cannot be forced from the boiler to return lines by steam pressure. Gravity, not steam pressure, is the force that returns condensate to the boiler. The Hartford return connection illustrated in Fig. 2 is commonly used with both one- and two-pipe systems.

The only necessary connections to a one-pipe radiator or coil are the pipe connection at the bottom and an air vent at the top. The vent releases air but will close thermostatically as soon as steam reaches it. The radiator valve must be completely opened or closed to operate properly. It does not lend itself to modulation.

A two-pipe coil or radiator can be connected to a two-pipe system as indicated for the air conditioner coil in Fig. 2. Connected in this manner, the valve can be turned on partially to modulate steam flow. A thermostatically controlled valve also could be used for this purpose.

Maintenance of a one-pipe system consists mainly in keeping it free from leaks. Air vents are inexpensive and are replaced when they fail to pass air or when they discharge water or steam.

Piping must pitch downward toward the return. Arrows in Fig. 2 indicate direction of downward pitch. Operating troubles are usually due to failure of the system to drain water. This causes failure of some units to heat properly. It also causes water hammer when steam is turned on or pressure raised after being down for some time. Methods of correcting piping errors in all systems will be considered together.

A two-pipe system is one in which one pipe is used to convey

*Continued on page 79*



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SUNISO REFRIGERATION OILS • WATER TREATMENT CHEMICALS

by Hugo C. Smith

## Proper Control Provides Protection for "Duplex" System

SINCE THE FIRST cold storage plants were put in operation around the turn of the century, application engineers have been concerned with the use of stand-by equipment to insure continuity of service in case of a compressor breakdown. Over the years, stand-by service has been provided in many different ways.

With the original ammonia plants it was customary to provide two separate compressors; one with sufficient capacity to handle the product load in summer, and one to handle the load in winter. These separate plants were connected in such a manner that by the use of manually controlled

valves the operator could throw either or both compressors into service.

This type of system had obvious advantages over a single compressor unit. It enabled the operator to utilize a compressor which was sized somewhere near his load requirements, thus operating at a higher and more economical back pressure. It provided assurance of continuous refrigeration service in case of a compressor breakdown.

The disadvantage of this system was that it required around-the-clock stationary engineers and it provided no insurance against a breakdown or leak anywhere in

the low side of the system.

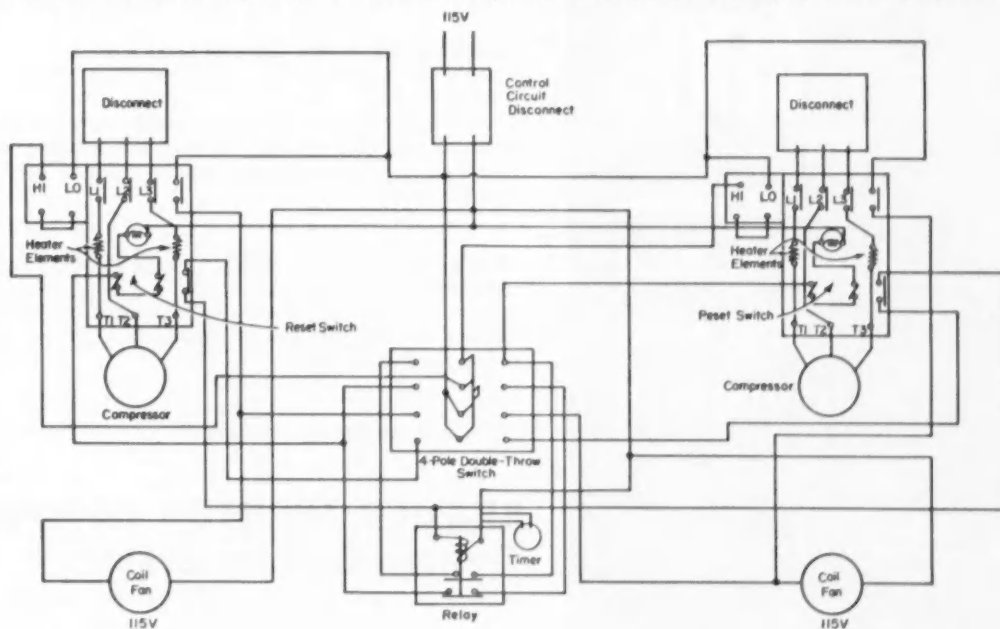
This same type of system has also been used extensively in "Freon" equipment with relatively few changes. The same advantages and limitations apply.

Attempts have been made in the past to design the perfect stand-by system that would control itself automatically. All such systems that utilized a common low side connected with two condensing units had two basic faults.

First, they did not provide protection in case of trouble on the low side. A leak in this part of the system would inactivate both compressors and, consequently, the entire system.

*Continued on page 79*

**WIRING DIAGRAM** for duplex system using lead compressor with identical standby or booster compressor.



*Wiring diagram drawn by Dewitt J. Noeth, Refrigeration Sales Corp.*

# WHY **KRAMER** THERMOBANK MAKES CENTS

...it costs  
less to buy  
and less  
to operate

When buying a low temperature system compare the total cost of all equipment including the coils, compressor and controls and you will find that...

#### **THERMOBANK SAVES DOLLARS ON COMPRESSOR COST**

It uses a smaller horsepower compressor than all other systems for the same capacity; because only THERMOBANK can use a low temperature compressor without overloading the compressor motor.

#### **THERMOBANK PRICE INCLUDES ALL PARTS**

It is complete; no extras to buy. Competitive systems require extras such as electric heaters, hand valves, electric lines, controls, insulation, etc.

#### **ONLY THERMOBANK ELIMINATES LIQUID DAMAGE**

It provides an abundance of heat for positive liquid re-evaporation during defrost. Systems that depend on heat of compression as source of heat will circulate liquid. Liquid slugging results in progressive compressor damage and expensive repairs.

#### **ONLY THERMOBANK PREVENTS LUBRICATION FAILURES**

With THERMOBANK oil stays in the crankcase. All other systems have a sharp reduction in suction pressure after defrosting, causing oil foaming and oil pumping, exposing the compressor to lubrication failures.

#### **THERMOBANK COSTS LESS TO OPERATE**

It uses less electricity and operates fewer hours. Only THERMOBANK automatically regulates defrosting based on frost buildup and eliminates unnecessary defrosting cycles. It defrosts at any outdoor temperature and is very fast (all other systems require three to four times longer to defrost).

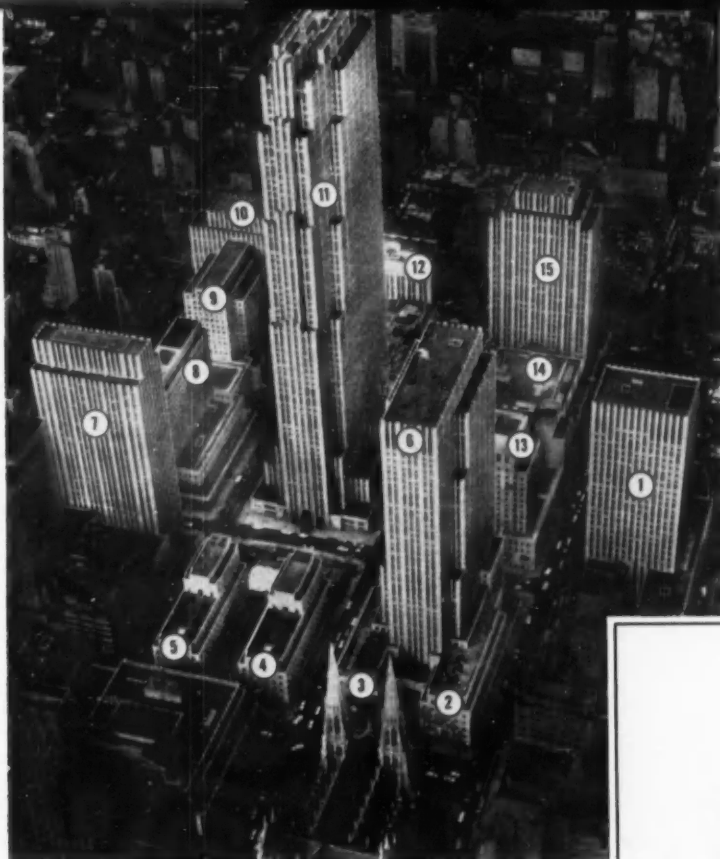
#### **ACTUAL USE PROVES THERMOBANK IS TROUBLE-FREE**

THERMOBANK is the oldest and the only time-proven system that can assure an owner trouble-free operation without continual threat of system failure and loss of expensive frozen food.

WRITE FOR AVAILABLE LITERATURE

**KRAMER TRENTON COMPANY**  
**Trenton 5, New Jersey**

44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER



**HERE'S HOW** Rockefeller Center's air conditioning "system" is integrated. Circled numbers in sketch represent size (in tons) and location of separate plants; arrows show buildings served by each. Numbers in photo indicate buildings: (1) Esso; (2) International North; (3) Palazzo d'Italia; (4) British Empire; (5) La Maison Francaise; (6) International; (7) Time & Life; (8) Eastern Air Lines; (9) U. S. Rubber Addition; (10) U. S. Rubber; (11) RCA; (12) RAC West; (13) Associated Press; (14) Radio City Music Hall; (15) Americas Building.

## Rockefeller Center . . . Air Conditioned "City"

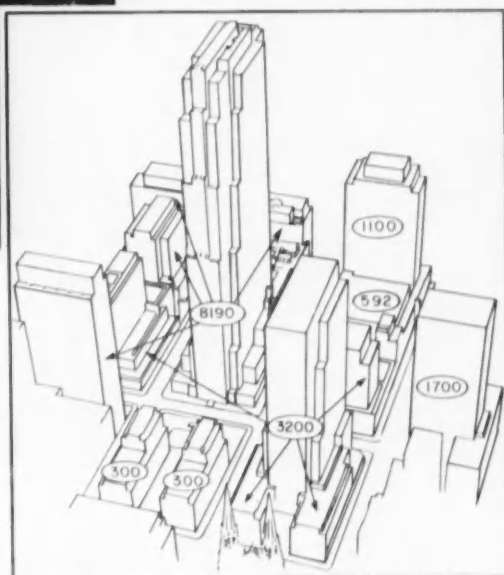
IF ANYONE SHOULD ASK YOU what's the largest integrated air conditioning system in the world for office buildings, just say "Rockefeller Center"—and you'll be right.

With the start-up of the 1,100 ton system serving the 31-story Americas Building, the giant compressors serving the famous 15-building "city within a city" reached a rated capacity of 15,382 tons. Installation of the additional equipment dropped the huge Pentagon Building in Washington, D. C. into second place after a 15-year reign as the leader. Capacity of the system in the Pentagon is 14,300 tons.

Other large office-building installations, in order of size, are:

Merchandise Mart, Chicago, 8,500 tons; Southland Center, Dallas (now building), 6,450 tons; Empire State Building, New York City, 5,250 tons; Gateway Center, Pittsburgh, 4,500 tons; Socony Mobil Building, New York City, 4,285 tons; United Nations Secretariat, New York City, 4,168 tons; New York Coliseum, 4,050 tons; Prudential Building, Chicago, 3,400 tons.

Rockefeller Center's air conditioning equipment



and installation, representing a \$12 million investment, will grow even larger. Plans call for total cooling capacity of 17,700 tons, not counting the equipment in the 47-story Time & Life Building that won't be ready until late in 1959.

Besides the Center's own cooling equipment, several tenants have their own room cooler installations, and a separate 300-ton system serves seven floors used for the offices of American Cyanamid Co. This latter is believed to be the highest installation of air conditioning serving any building.

There's a sales point in all this. Virtually all new office buildings today are planned for air conditioning; the big market is now in structures put up some years ago. The ratio is about five older buildings to one new.

As industry seers see it, within 10 years all major office buildings in the U. S. will have been air conditioned. Economically, it's a sound move.

# COMMERCIAL REFRIGERATOR SALES NEWS

## NCRSA Names Hattenbach President; Members Plan How To Promote Services

HARRY A. HATTENBACH of Hattenbach Co., Cleveland, Ohio, was elected president of National Commercial Refrigerator Sales Association at the close of that group's 11th annual convention at the LaSalle Hotel, Chicago, Ill.

Named to serve on the new slate of officers with Hattenbach were: 1st vice president, Milton I. Schwartz, S. & M. Schwartz & Co., New York City; 2nd vice president, Ray H. Winther, Ray Winther Co., San Francisco, Calif.; 3rd vice president, Dudley M. Cawthon, Dudley Cawthon, Inc., Miami, Fla.; and treasurer, Donald D. Denny, Modern Market Fixtures, Inc., Dayton, Ohio.

Three new directors also were elected. They are: Robert Trudeau, National Butchers Supply Ltd., Montreal, Quebec; Phil Schnell, Birkenwald Equipment Co., Portland, Ore.; and Max B. Udell, Udell Refrigeration Co., Grand Rapids, Mich. In recognition of the association's growing Canadian membership, Trudeau was named to the board as the first man from outside the United States ever to serve in this capacity.

Theme of the entire meeting was "Promoting the Value of Distributors' Services". The two days of educational sessions were filled with talks, mostly by the group's own distributor members, pointing up the many ways in which this aim can be accomplished.

Total NCRSA membership was reported at the opening session to be 219 distributor members and 22 associate members. Applications were received from several additional members as the convention progressed.

S. W. Davis, Jr., of S. W. Davis,

Jr., Inc., Greensboro, N.C., retiring president of NCRSA, opened the discussions by stressing the significance of the word "quality" in every phase of a distributor's operations. Harry Hattenbach followed this with a talk pointing out that membership in the association, while extremely valuable, could not in itself cure all of the industry's problems. He urged each distributor to put his own house in order by critically appraising his operations from the standpoint of sales, service, and administration.

An address prepared by Henry M. Haase, president, York Div., Borg-Warner Corp., and delivered by Austin Rising, the firm's vice president and director of marketing, examined several phases of manufacturer-distributor relations. It pointed out that there is no pat answer to the problem of distribution for every manufacturer and all types of products, but that basically the manufacturer-distributor relationship should be a partnership. The manufacturer, it indicated, looks for much the same things in a distributor that a distributor looks for in a manufacturer, including such qualities as financial status, attitude, reputation, service, location and physical facilities, manpower, and advertising and promotion.

"Men Make the Difference" was the theme of a stimulating talk by Verne R. Martin, former Maytag sales executive and now a sales consultant, in which he emphasized the importance of proper care in selecting men for sales positions. He outlined some specific plans for properly qualifying job applicants in order to minimize the waste of time and money

*Continued on page 44*

## 2d QUARTER SALES SHOW SLIGHT DROP FROM '56

The regular quarterly survey of commercial refrigeration distributor sales maintained by the National Commercial Refrigerator Sales Association indicates that, on the average, business was slightly under 1956 during the second quarter. Sales for the six months, however, are slightly ahead of the first half of 1956.

Averages of those participating are as follows: total dollar sales for the first six months of 1957 compared with the first six months of 1956, 1.61% increase; total dollar sales second quarter of 1957 compared with second quarter of 1956, 3.33% decrease.

Dollar net profit before taxes for second quarter of 1957 compared with second quarter of 1956, 1.08% decrease; inventory June 30, 1957 compared with same period of 1956, 3.82% decrease; and accounts receivable June 30, 1957 compared with June 30, 1956, 7.12 increase.

## HUSSMANN EXEC DIES AT NCRSA MEETING

Wayne Clemens, a sales executive of Hussmann Refrigeration, Inc., for the past 11 years, died of a heart attack Monday, November 18 in Chicago.

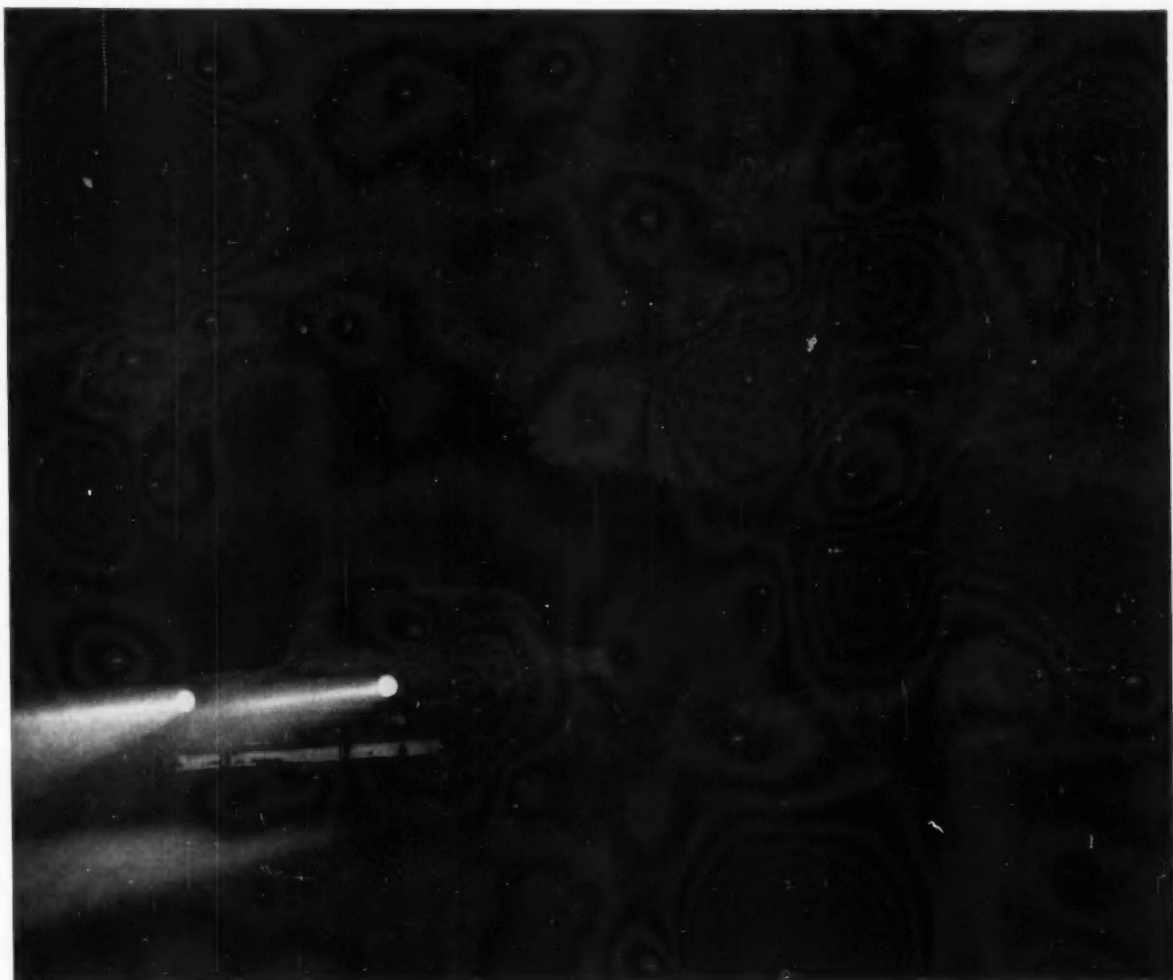
Clemens, who was 44 years old, was stricken while attending the first afternoon session of the annual convention of the National Commercial Refrigerator Sales Association.

For the past six years, he had served as assistant general sales manager, regional accounts division, for Hussmann. Prior to that he had been the company's division manager in Ohio.

Clemens lived in St. Louis, Mo. He is survived by his widow, Louise, and three young children, one daughter and two sons.

## FRASER & JOHNSTON REP.

A new distributorship for Fraser & Johnston Co. heating and air conditioning equipment has been established with Sidles Co. of Omaha, Neb.



## THE CUSTOMER SERVICE THAT WAS 375 MILES LONG

Not too long ago, the manufacturer of a new bulk milk cooler was experimenting with design changes aimed at lowering his unit price.

We at Bendix-Westinghouse heard about the problem and offered the services of one of our field men who knew refrigerating engineering and who had a lot of experience in the dairy field. Our offer was promptly accepted, and—because our manufacturer friend had a big order in the balance—a “rush” tag was placed on the assignment.

At the time, our field man was 375 miles away from the manufacturer's city. But, by driving all night, he was there the next morning. By the end of the day he had

made some design suggestions that resulted in a better product at lower cost. Happy ending: The manufacturer got his milk cooler order—and Bendix-Westinghouse got a nice compressor order, too.

Such willingness—and ability—is, we're proud to say, a trait that extends from top to bottom in our organization. We've got the darndest people you ever saw when it comes to practising the philosophy that “what's good for the customer (or prospect) is good for us, too”.

If that kind of spirit—plus compressor quality that takes a back seat to no others—appeals to you, we have a suggestion to make. Get our story.

# ***Bendix-Westinghouse***

EVANSVILLE, IND.

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio • Export Sales: Bendix International, 205 E. 42nd St., New York 17, N.Y.

Circle No. 29 on Reader Service Card

## SALES NEWS...

*Continued from page 42*

involved in training salesmen who ultimately prove unfit for the job.

"Locating, Designing, and Engineering the Store of Tomorrow" was discussed in detail by Ralph E. Ernst, modern store architect for the National Association of Retail Grocers in the United States. "Financing the Store of Tomorrow" was the topic of Milton Schwartz, who pointed up the extra profits that can be made by distributors through handling at least a portion of their customers' paper instead of turning it over to banks or other financing organizations.

Following a color movie on produce packaging presented by Dupont, George F. Wiedemer, Cable Wiedemer, Inc., Rochester, N.Y., discussed some of the things a distributor can do to put more life into the products he handles.

George A. Lucas, Allied Store Engineering Corp., East Hartford, Conn., urged distributors to make

a greater effort to sell their services to the customer. To every distributor, he maintained, the word "service" should mean far more than the mechanical maintenance and repair of refrigeration equipment. He pointed out that the most important elements of service are all those things that a distributor can and should do to help make his customer's business succeed.

An encouraging economic forecast for 1958 was offered by Karl O. Nygaard, director of business research for B. F. Goodrich Co., who asserted that if his own private crystal ball hadn't lost its potency, business next year should be as good as or better than that of 1957.

The educational sessions concluded with one of NCRSA's traditional panel discussions, in which three distributor members "put the shoe on the other foot" by voicing their opinions on how they would handle various phases of distributor relations if they were manufacturers. Dudley Cawthon told why he would sell his products through distributors;

Ray Winther outlined steps he would take to teach his distributors to be good distributors; and George Schoenbacher, Red-E-Cold Refrigerator Co., Chicago, explained why and how he would offer his distributors a well rounded sales policy.

## RECORD CORP. NAMES HOUSTON DISTRIBUTOR

Leatherwood Supply Co., of Houston, Tex., has been named a wholesale distributor of Record Corp., commercial refrigeration products.

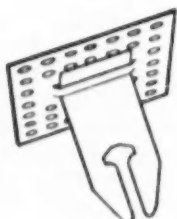
Leatherwood is headed by T. W. (Bill) Leatherwood, owner and president with 27 years in the refrigeration and air conditioning industry. Other executives in the company include: W. R. Rigby, vice president; C. A. Leatherwood, secretary-treasurer; Jim Brown, field and office engineer; and W. H. Cleveland, stock control.

**BUY FROM YOUR REFRIGERATION WHOLESALE**

## INSULATION INSTALLATIONS

**FASTER — EASIER — COST LESS!**

Anchors by **Stic-Klips®**



Stic-Klips® are time and labor saving anchors and fasteners for attaching insulation, strapping, metal lath, wall fixtures, wiring and conduit to curved or flat metal or masonry surfaces. Stic-Klips® feature no surface drilling, quick fastening, no fire hazard and a strong positive bond. Send for free illustrated folder.

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## LA CROSSE THRIF'AIRE BOTTLE COOLER

First in economy . . . finest in design and now the new **low low price** of the La Crosse Thrif'Aire makes your greatest value in bottle coolers! The exclusive "plug-in-panel" refrigeration unit is quickly and easily removed . . . adaptable to many uses. Beautiful grey baked enamel . . . 42" and 62" lengths . . . fingertip, stainless steel, slide-away doors.

**Your welfare is ours . . . We don't sell direct**  
**WRITE TODAY**

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WALK-IN COOLERS



BEVERAGE COOLERS



DIRECT DRAWS



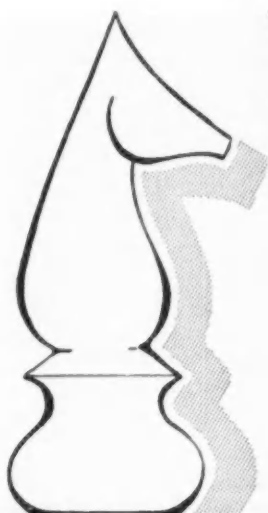
CUBE MAKERS



DRAINBOARDS

EXPORT OFFICE — 125 BROAD STREET • NEW YORK CABLE — EXIMPORT

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DECEMBER, 1957 • COMMERCIAL REFRIGERATION



# YOUR BEST MOVE

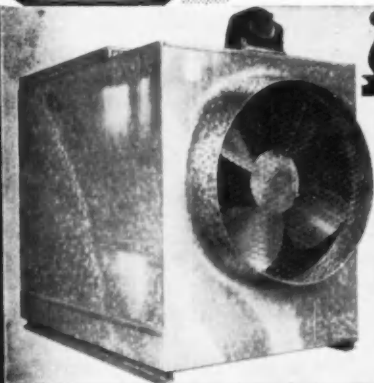
in packaged cooling towers... **DOVER**

**America's New Standard For Packaged Cooling Towers**



## HOT-DIP GALVANIZING AFTER FABRICATION

... effectively stops rust with a heavy zinc coating that leaves no gaps or unprotected spots. You pay nothing extra for the superior protection of hot-dip galvanizing AFTER fabrication.



## HORIZONTAL INDUCED DRAFT TOWER Series CF

Ruggedly built for efficient operation, it is available in sizes from 2 to 100 tons. The perfect unit for air conditioning and refrigeration installations and for jacket water or compressor cooling.

## VERTICAL INDUCED DRAFT TOWER Series V

Has centrifugal blower and is extra quiet in operation. Perfect for installations where space is a problem, it's available in sizes from 5 to 100 tons.

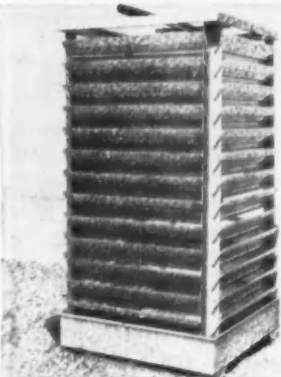


## STAINLESS STEEL FANS

All horizontal induced draft towers—Series CF—are equipped with a propeller fan and shaft made of stainless steel. A distinctive Dover feature that insures long life and dependable service.

## "TAKE-APART" FEATURE

Unique tie-rod construction, virtually eliminating bolts, enables Dover towers to be quickly disassembled and put together again right on the job site. Difficult locations no longer a problem.

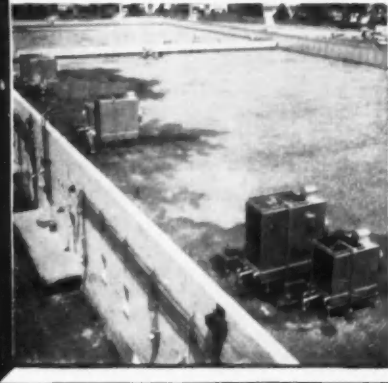


Series K—All steel  
Series S—Steel and Redwood

## NATURAL DRAFT TOWERS

Both series have famous Dover bolt-free construction, and are available from 2 to 225 tons. Series K meets all municipal fire codes. Series S has steel basins and crowns with redwood louvers and posts; features lower price.

**Make your next move now! Send for your free Dover Catalog, displaying their complete line of packaged towers. Act now!**



Construction engineers, building the smart, new Mission, Kansas shopping center specified Dover packaged towers. 18 units, ranging from 3 to 100 tons, are now operating efficiently and economically for all the tenants.

## DOVER MFG. CO.

Dept. 101, 3117 Weatherford Ave.  
Independence, Missouri

- ☐ Please send me a free copy of the new Dover Catalog.
- ☐ Please send me the name of my nearest Dover Representative.

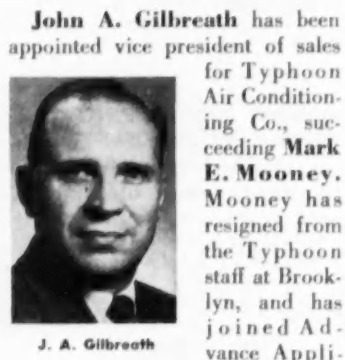
NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# ABOUT PEOPLE



J. A. Gilbreath

**John A. Gilbreath** has been appointed vice president of sales for Typhoon Air Conditioning Co., succeeding **Mark E. Mooney**. Mooney has resigned from the Typhoon staff at Brooklyn, and has joined Advance Appliance Co., Typhoon distributor in Tampa, Fla. as a partner. Gilbreath has had 23 years experience in the air conditioning field. He was for 13 years manager of the Air Conditioning Div. of Servel Inc. For the past four years he has been manager, respectively, of the Packaged Products Dept. and the Wholesale Dept. of Westinghouse Electric Corp.'s Air Conditioning Div.



Appointment of **Leonard M. Call** as merchandising manager for the Airtemp division of Chrysler has been announced. Call joins the staff of M.B. Smith, Airtemp director of sales planning. Call formerly was assistant advertising and sales promotion manager for General Electric Air Conditioning Div., Bloomfield, N. J. Dayton will be his headquarters.

In promotions at York Corp., subsidiary of Borg-Warner, **Robert E. Cassatt** has been named general sales manager of packaged products; **Robert G. Werden**, general sales manager of engineered equipment; **Walter L. Pharo**,

general sales manager of contract products; and **M. S. Lehair**, assistant vice president of marketing. Cassatt has been sales manager of York's Commercial Div. since 1955, and earlier was general sales manager of Fedders-Quigan. Werden has been with York for 20 years, most recently as manager



R. E. Cassatt

R. G. Werden



M. S. Lehair

W. L. Pharo

of the North Atlantic district. Pharo, with York since 1935, has been sales manager of the Industrial Div. Lehair, who began his career with York in 1917, will be staff assistant to Austin Rising, vice president and director of marketing, with special emphasis on trade relations.

**John Young** has been appointed district sales representative of Copeland Refrigeration Corp. for the area of Kansas, Missouri, and southern Illinois. Young has worked on development and promotion of heat pump systems for Union Electric Co. of Missouri; as sales engineer for Acro Mfg. Co., and sales manager for Lingle Refrigerator Co. **Donald R. Macklem** also has been appointed representative of Copeland cov-

ering Nebraska, Iowa, northern Illinois, and southern Wisconsin. Macklem has been in the commercial refrigeration and air conditioning field for the past 26 years, during most of which he was employed by Frigidaire Div. of General Motors Corp. in the



D. R. Macklem

J. Young

engineering, service, sales engineering, and application and sales promotional departments. In 1954, he joined American Mfg. Co. as assistant manager in charge of engineering and manufacturing. In 1955, he joined Laurel Products Inc., as chief engineer.

**Sterling E. Alexander**, formerly a sales specialist for York Corp., has been appointed director of sales for Milwaukee Valve Co. Alexander was connected with Henry Valve Co. for 14 years in various sales supervisory positions including assistant sales manager.

**Dean C. Seitz** has been appointed refrigeration sales manager of McQuay, Inc. During the past eighteen years, Seitz has been with York Corp. where he has held various sales management positions from district manager to general commercial sales manager.



Establishment of a new district office at 11 W. Monument St., Dayton, Ohio, has been announced by Allis-Chalmers Industries Group. **Robert B. Fulton**, formerly man-



Puts the Double  
Crimp on Dirt  
and Moisture

**REVERE**

**DRYSEAL**

## COPPER REFRIGERATION TUBE

Not one but two crimps are made in each end of DRYSEAL. This is the final step in manufacturing, that immediately follows a special cleaning and dehydrating operation, which keeps dirt and moisture from entering the tube.

The seal is made in such a way that the diameter of the tube does not change, which permits DRYSEAL to be passed through any opening large enough for the tube itself.

As for bendability—the soft temper of the copper used in DRYSEAL allows you to make the most intricate bends by hand. And its ductility and soft temper make it extremely easy to flare for compression fittings without danger of splitting. Economical tube sizes range from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

Also you'll find the job-size, 50-foot one-coil pack easy to handle, light weight, economical.



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Founded by Paul Revere in 1801  
230 Park Avenue, New York 17, N. Y.

Mills: Rome, N. Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.

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ager of the Cincinnati district, has been named Dayton manager. **William F. Vander Maas**, formerly manager of the Grand Rapids district, has been appointed manager of the Cincinnati district, and **James A. Sudduth** heads the Grand Rapids district.

**J. M. Newlon, Jr.** has been appointed manager of National-U.S. Radiator Corp.'s Atlanta branch office. Newlon comes to Atlanta from his former post as branch manager of the Richmond, Va. office. He joined



the company in 1950 as a sales engineer in the Kentucky, Indiana, and Tennessee territory, and was promoted to the Richmond assignment in April of 1956. He will be responsible for the sale of the company's hydronic equipment for residential, commercial and industrial applications in Georgia, Alabama, Florida, and Tennessee.

**R. D. Kemper** has been appointed sales manager of the coil department of McQuay, Inc. Prior to joining McQuay, Kemper was engineering manager of room air conditioners for the York Div. of Borg-Warner Corp. Excepting for the time spent in military service, he was with York for 16 years. While with the York, he worked on the engineering, design and development of air conditioning and refrigeration equipment.



Bohn Aluminum & Brass Corp. has announced the appointment of **Edward O. Falberg** as manager of the company's Greensburg, Ind., plant—bearing manufacturing

headquarters for Bohn. Falberg takes the position made vacant by the death of Wallis W. Wood. Falberg formerly was plant manager of three of Bohn's Detroit plants. He has been with the company since 1950.

**Clinton F. Hegg** has been elected to the board of directors of L. O. F. Glass Fibers Co. Hegg is vice president and general sales manager of the firm.

**Lafayette E. Hammond** has been elected president of Lehigh, Inc., it was announced by Frank E. Shumann, chairman of the board. **Leroy M. Bissett** and **Clayton L. Coulter** were elected vice presidents. Hammond who has been chief engineer of Lehigh, Inc. since 1943, succeeds **Alvin A. Shumann** who has been named chairman of the finance committee. Bissett, who joined Lehigh,



L. E. Hammond      L. M. Bissett

Inc. in 1946 will continue as general manager of Lehigh Mfg. Co., the company's refrigeration products division, a position he has held since 1952. Coulter, who becomes vice president in charge of purchasing, has been associated with Lehigh for 11 years and a director since 1953. It was also announced that the company's foundry division will now be known as Lehigh Foundries Co., Div. of Lehigh, Inc.

**Maxwell F. Rather** has retired as vice president and eastern district manager of Johnson Service Co. after 42 years' service. Rather has been in charge of the eastern district sales offices for 20 years and organized and directed

the company's export division as well. He is a member of the board of directors and executive committee and will continue to serve on both.

**H. M. Carnahan** has been appointed to the position of director



of sales of Penn Controls, Inc. Carnahan has spent more than 20 years in the heating and air conditioning industry, much of the time with American Radiator and Standard Sanitary Corp., where he was vice president for its Sunbeam Div. He was also sales manager of residential heating and air conditioning equipment for the Airtemp Div. of Chrysler Corp. He also served as director of sales of Cherry-Burrell Corp. in Chicago, coming to Penn from that company.

**L. P. Hanson**, who for the last 27 years was associated with U.S.



Airco., has been appointed sales manager of Barry Blower Co., manufacturers of blowers multiple blower assemblies, direct and belt driven ventilating sets, various types of centrifugal blower wheels and housings. While with U.S. Airco., Hanson was successively sales engineer, chief engineer of the marine division, vice president in charge of sales, administrative vice president, and vice president in charge of engineering.

American Air Filter Co., Inc., has announced the reassignment of two of its supervisory sales engineers for Herman Nelson unit ventilator products. **Frank A. Stanton** has been appointed to

# See your wholesaler for **genetron**<sup>®</sup> super-dry REFRIGERANTS a complete line for your every need!

## **genetron 11**—ORANGE LABEL TRICHLOROMONOFUOROMETHANE

For industrial and commercial refrigeration and air conditioning systems using single or multi-stage centrifugal compressors. Can also be used for either direct or indirect expansion-type systems.

## **genetron 12**—WHITE LABEL DICHLORODIFLUOROMETHANE

Used in virtually all types of refrigeration and air conditioning equipment, large and small, household and industrial, direct and indirect expansion systems.

## **genetron 22**—GREEN LABEL MONOCHLORODIFLUOROMETHANE

Typical units in which "Genetron" 12 and 22 are used: refrigerators, freezers, frozen food lockers, window air conditioners, home or office console units, large custom-built units for commercial comfort or industrial processes, large store units, mobile units for transportation equipment, large home units for addition to present hot air heating systems.

## **genetron 113**—PURPLE LABEL TRICHLOROTRIFLUOROETHANE

Used in 50-ton and larger centrifugal compressors, primarily for large comfort cooling systems, brine cooling systems, and other commercial and industrial air conditioning and refrigeration systems.

## **genetron 114**<sub>A</sub>—BLUE LABEL DICHLOROTETRAFLUOROETHANE

Used in centrifugal and rotary compressors for commercial, industrial and household refrigeration.

### QUICK FACTS on genetron super-dry refrigerants

- Guaranteed exceptionally low moisture content
- Non-corrosive to standard equipment materials
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- Critical and freezing points well outside range of operating uses
- Solvent action on oil helps prevent solidification or congealing of lubricant

- Freely interchangeable and may be mixed in any proportions with comparable fluorinated hydrocarbons meeting the same strict refrigerant specifications
- Aid in lubrication of equipment; generally miscible with oil
- Available everywhere, from refrigeration wholesalers throughout the country



**genetron department**  
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ALLIED CHEMICAL & DYE CORPORATION  
40 Rector Street, New York 6, N. Y.

the middle Atlantic states area and will be headquartered in New York City. He formerly was sales supervisor for the midwestern states and was located in Louisville. **Dale D. Briggs** has been named to the central states area and will be transferred to Louisville from San Francisco.

**Matt Ryan** and **Maurie Hulen** have been named regional sales managers for the Buffalo and Syra-

cuse territories of Amana Refrigeration, Inc. At the same time, **James Gall**, regional sales manager of the Buffalo region, was transferred to the Detroit region. **Ryan**, who joined Amana in 1955, has been working in the Buffalo region as dealer development manager. The territory includes western New York, western Pennsylvania, and portions of West Virginia. The appointment of **Hulen** to the Syracuse territory, consisting of most of upper New York

State, is a new position. **Hulen** joined Amana in April, 1955, and has served in the freezer food plan merchandising program. **Gall** became Buffalo Regional Sales Manager in May, 1955.


**C. W. Pollock**, for the past two years chief engineer, Drayer-Hanson, has been named manager, Air Conditioning & Refrigeration Div., at the firm's main plant facility. **Pollock** will be responsible for both sales and engineering of all products. With the advancement of **Pollock**, Drayer-Hanson's special projects engineer, **A. J. Mallinckrodt**, becomes chief development engineer.



C. W. Pollock

**Ernest C. Hungate** has been named industrial air conditioning product specialist for the Machinery and Systems Div. of Carrier Corp. **Hungate** has been serving in the application engineering department for the division, spearheading development of the new Rotaspray Weathermaker for air conditioning of factories. This central unit provides close control of humidity and temperature while reducing maintenance. It was introduced earlier this year. He joined Carrier at its Atlanta office in 1946.

**Stoddard Industries, Inc.**, has announced the appointment of **George H. Cantrell** as sales manager. **Cantrell** will supervise the activities of Stoddard's regional managers throughout the United States, Canada, and foreign markets. For the last several years he has been the president and oper-



**DID YOU KNOW?**  
**THAT WATSCO SUPPLIES THE**  
**INDUSTRY WITH THESE FINE**  
**COMPRESSOR PARTS**

## FLAPPERS

For sealed units. Made of the finest Swedish Spring Steel. 31 different flappers to fit most hermetic compressors.

## COMPRESSOR GASKETS

For sealed units. Precision die cut. Of uniform thickness to insure original efficiency. Available for most hermetic compressors.

## TERMINETTES

The replacement kit for fused glass type terminals. Repair fused glass terminals with Terminettes and in no time at all the sealed unit is ready for assembly. Terminettes eliminate leakage, assure a long trouble-free life.

## INSIDE REPLACEMENT TERMINALS

For sealed units. Available in 13 sizes including the all new Nylon X-9N for Tecumseh units.

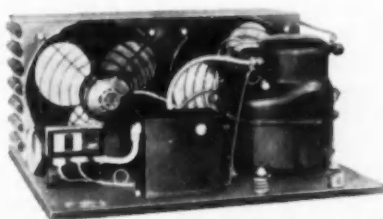
*Complete listing of all compressor parts is shown in our latest catalog. Send for your copy today.*

Visit our booth No. 233 and 236 at the 10th Exposition of the Air Conditioning and Refrigeration Industry, November 18-21.

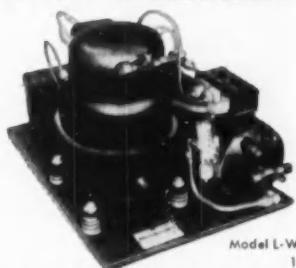
**WATSCO INC.** Send for 1957 Catalog

**1020 EAST 15th STREET, HIALEAH, FLORIDA.**

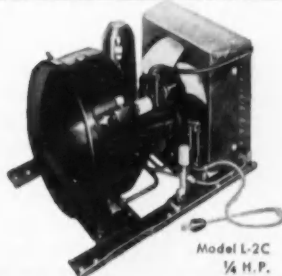
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Model L-20CK2 2 H.P.



Model L-W15CK2  
1½ H.P.



Model L-2C  
¼ H.P.

for the **size** you need...  
the **capacity** you want...  
the **quality** you expect...

.....*Specify* **Lehigh!**

#### BLU-COLD HERMETIC CONDENSING UNITS

Any size, from 1/5 to 2 H.P.

for any application, commercial or industrial.

Send for new 4-page catalog sheet.



*Lehigh* condensing units

LEHIGH MANUFACTURING COMPANY, Division of Lehigh, Inc., Easton, Pa.  
Manufacturers of Open Type and Hermetic Condensing Units and Compressors.

EXPORT DEPT.: 13 East 40th Street, New York 16, N. Y.

& AIR CONDITIONING • DECEMBER, 1957

Circle No. 36 on Reader Service Card



ating executive of two different companies. One, the Beange Trading Co., is an importing and mail order operation. The other, Advertising Specialties Co., a jobber of sales stimulants.

**Alfred R. Scarperi** has been appointed to head sales engineering work on air conditioning for National-U.S. Radiator Corp.'s St. Louis sales area. Scarperi will headquarter at the company's St. Louis branch office. He joined National-U.S. in 1953. He then spent two years in sales engineering work at the company's New York office.



**John E. Zeller** has been appointed to the newly created position of general superintendent of

construction in insulation contract operations of the Armstrong Cork Co. Zeller will be replaced as an assistant in contract operations by **Robert H. Lawrence**, who has served in the Baltimore district office for the past 10 years. **Claude E. Foster**, of Armstrong's Dallas district office, has been transferred to Houston as branch manager.

**William E. Cashen** has been appointed sales representative in the midwest for the Air Impeller Div. of Torrington Mfg. Co., headquartered in Dayton, Ohio. Cashen will direct the company's sales and engineering services in Dayton, Columbus, Cincinnati, and the rest of southern Ohio. After joining the firm in 1942 as a laboratory en-



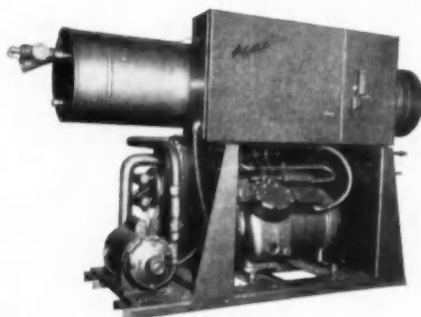
gineer, he supervised research and development in the Air Impeller Div. from 1948 to 1952, and later became engineer in charge of product application, and sales engineer.

**Don L. Warner** has been appointed sales representative for Marsh Instrument Co. in the Philadelphia area. Warner will serve eastern Pennsylvania, New Jersey, District of Columbia, Maryland, and Delaware. The new Marsh sales office in Philadelphia also will be under his direction. He has been associated with the firm's sales staff for the last eight years.



**Ralph W. Moore**, active in the heating and refrigeration industry for over 10 years, has

**Acme**  
INDUSTRIES, INC.  
JACKSON, MICHIGAN  
manufacturers of  
**QUALITY**  
air conditioning  
and refrigeration  
equipment since 1919



**Acme's NEW FLOW-COLD**  
...most advanced packaged chiller  
in the 3 thru 20-ton range.

Significant improvements in the use of balanced, proven Acme components make the Flow-Cold today's leading packaged chiller in its capacity range. Advanced design in the accessible hermetic type compressor permits operation "as quiet as a kitten's purr."

'Phone or write Acme for details

joined sales department of Detroit Controls Div. of American-Standard, and will headquarters in Charlotte, N. C.

Moore will represent the full line of Detroit products in North Carolina, and parts of Virginia and South Carolina.



**GOLD HEART** Award, highest honor of the American Heart Association, was presented to Irving B. Hexter (right), president of Industrial Publishing Corporation, at the Heart Association's annual dinner in Chicago. The award was presented by Dr. Edgar V. Allen, president. Mr. Hexter was cited as "the chief architect" of Heart Sunday. Originated in Cleveland four years ago with Mr. Hexter as campaign chairman, Heart Sunday is the highpoint and climax of the month-long Heart Fund drive each February.

### OOPS, SORRY!



R. B. Schmidt

W. S. Malloy

Last month an item appeared in these columns announcing the appointment of **William S. Malloy** as personnel manager and **Richard B. Schmidt** as sales promotion manager of Muller Climatrol, Div. of Worthington Corp. Unfortunately, however, the captions beneath the pictures of these gentlemen were transposed by our printer. To correct this error, we are publishing these pictures again — this time properly identified!

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

## MUSIC MAESTRO PLEASE



AN ELABORATE CONTROL SYSTEM governing both temperature and humidity within fairly narrow limits has proved the key to maintaining the conditions necessary for proper storage of expensive musical instruments in a special area constructed for this purpose by radio station WTMJ, Milwaukee, Wis.

The station's desire to protect its woodwinds, string instruments, and drums from possible atmospheric damage prompted the installation of air conditioning in the storage rooms.

Each room contains a dual thermostat and two room-type humidistats, one for winter operation and the other for summer.

In winter, the dual thermostat controls the valves on the radiation and booster coils. The space temperature can be lowered at night when the room is unoccupied, but simply pushing a button on the thermostat will restore the warmer daytime temperature if the room is to be occupied.

The winter humidistat starts the humidifier and keeps it in operation until sufficient moisture has been introduced into the room to satisfy human requirements and to prevent the instruments from drying out.

During summer the dual thermostat and the summer humidistat combine to operate the refrigeration compressor to cool the air to the desired temperature and to provide the required relative humidity.

Summer humidity in this area is quite high. In the process of dehumidification, however, the air discharged from the refrigeration system might be quite low. The booster coils then are used to heat the air to the proper room temperature as determined by the thermostat.

The room thermostats used in this installation are remote readjustable units. In summer the control point is readjusted from an outdoor thermostat so that the differential between the temperature indoors and outdoors is not too great. A temperature setting of 74 F on the thermostat would be readjusted automatically to approximately 78 F should the outdoor temperature approach 90 F.

All changes from heating to cooling and vice versa are made automatically. Also, whenever the refrigeration equipment in any one of the zones operates, the humidifiers are cut out automatically. Under such conditions, the problem is one of dehumidification rather than humidification.

Another economical feature, other than the fuel saved from a lower night-time setting on the dual stats, is the fact that the refrigeration compressor will not start until the outdoor air alone can no longer maintain the desired temperature.

All of the thermostats, valves, and dampers used in the installation are of the modulating type. These allow for intermediate positions, rather than just on-off operation.



Architects: Kahn and Jacobs, New York.

## Permanent low "K" factor of four-year-old Styrofoam® installation proved at Mt. Sinai Hospital


After exhaustive investigation, Styrofoam—a Dow plastic foam—was chosen for insulation in twenty-three cold storage rooms at Mt. Sinai Hospital, New York City.

Four years of use at Mt. Sinai has proved that Styrofoam has a permanent low "K" factor and an outstanding ability to resist water and moisture. Its inherent cleanliness and its reduction of maintenance costs are other desirable factors

found by the hospital.

Let a Styrofoam distributor help you with your next insulation project. Many of them have better than a decade of Styrofoam experience backed by Dow research facilities and technical service. Contact the distributor nearest you, or write to THE DOW CHEMICAL COMPANY, Midland, Michigan—Plastics Sales Department PL1701A-2.

### CHECK THIS EXCLUSIVE COMBINATION OF PROPERTIES

<b>STYROFOAM*</b> 	Insulations	Low "K" factor	Superior water resistance	High compressive strength	Light weight	Superior resistance to rot and vermin	Easy handling and fabrication	Low-cost installation	Lowest cost per year service
	STYROFOAM	•	•	•	•	•	•	•	•
A			•	•		•			
B		•			•			•	
C		•		•					

YOU CAN DEPEND ON



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DECEMBER, 1957 • COMMERCIAL REFRIGERATION

## GET IN TOUCH WITH YOUR STYROFOAM DISTRIBUTOR SOON

### CALIFORNIA

Los Angeles 13: Pacific Foam Products Co.  
San Francisco: Western Foam Products, Inc.

### FLORIDA

Tampa: The Soule Co.

### GEORGIA

Atlanta 8: Badham Sales Co.

### ILLINOIS

Chicago 11: The Putnam Organization, Inc.

### IOWA

Des Moines: Wilson-Rogers, Inc.

### KANSAS

Kansas City: Styro Products, Inc.

### MASSACHUSETTS

Ipswich: Atlantic Foam Products Co.

### MICHIGAN

Detroit: Par-Foam, Inc.  
Midland: Floral Foam Products

### MINNESOTA

Minneapolis 8: Edward Sales Corp.

### MONTANA

Billings: Madden Construction Supply Co.

### NEW YORK

Rochester 20: William Summerhays Sons Corp.  
Long Island City 1: Styro Sales Co., Inc.

### OHIO

Cincinnati: The Seward Sales Corp.  
Cleveland 3: Structural Foams, Inc.

### PENNSYLVANIA

Plymouth Meeting: G & W H Corson, Inc.

### TEXAS

Houston: The Emerson Co.

### UTAH

Salt Lake City 10: Utah Lumber Co.

### WASHINGTON

Seattle 9: Wiley-Bayley, Inc.

### WISCONSIN

Milwaukee: S & S Sales Corp.

### CANADA

Edmonton, Alberta: Northern Asbestos & Bldg. Supply Co., Ltd.  
Kitchener, Ontario: Durofoam Insulation, Ltd.  
Vancouver, B. C.: Wiley Bayley Dist., Ltd.

### THE DOW CHEMICAL COMPANY

Midland, Michigan



#### January 27-29, 1958

American Society of Heating and Air Conditioning Engineers (Annual Meeting)  
Pittsburgh, Pa.

#### March 31-April 2, 1958

Gas Appliance Manufacturers Association (Annual Meeting) The Greenbriar  
White Sulphur Springs, W. Va.

#### May 4-7, 1958

Air-Conditioning and Refrigeration Institute (Board Meeting and Annual Meeting)  
The Homestead  
Hot Springs, Va.

#### May 5-9, 1958

National Restaurant Association (Convention and Exposition)  
Navy Pier  
Chicago, Ill.

#### June 9-13, 1958

Oil-Heat Institute of America (Convention and Exposition)  
New York, N. Y.

#### June 23-25, 1958

American Society of Heating and Air Conditioning Engineers  
American Society of Refrigerating Engineers (Joint Meeting)  
Leamington Hotel  
Minneapolis, Minn.

#### October 12-17, 1958

American Gas Association (Annual Convention)  
Atlantic City, N. J.

#### October 22-24, 1958

Air-Conditioning and Refrigeration Wholesalers (Annual Meeting)  
Sheraton-Palace Hotel  
San Francisco, Calif.

#### December 1-3, 1958

American Society of Refrigerating Engineers (Semiannual Meeting)  
Hotel Roosevelt  
New Orleans, La.

#### December 1-4, 1958

National Warm Air Heating and Air Conditioning Association (Committee Meetings and Annual Convention)  
Cleveland, Ohio

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**NEW! anco**  
**NO-MO-RUST**  
fills seasonal  
business slump

#### Anco No-Mo-Rust

A new product designed to increase your fall and winter profits. This proven-effective formula prevents rust and corrosion in water and steam boilers and in tempered water systems.

#### Economical to use

One 2-lb. can of No-Mo-Rust provides protection for 250 gal. chilled water, 125 gal. hot water, 2-lb. and 10-lb. cartons, 4 to a case. Order now, enjoy your 'round profits.



Specialists in  
making water behave

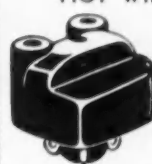
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Chemical Company, Inc.  
Box 1424 • Macon, Georgia

## Refrigeration and Air Conditioning RELAYS

GENERAL  ELECTRIC



HOT WIRE



KLIXON

Request our  
catalog sheets.

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**SAM HAMMER INC.**

698 WASHINGTON AVENUE  
BROOKLYN 38, NEW YORK  
SOLD ONLY THRU JOBBERS

Circle No. 40 on Reader Service Card

Nor-Lake, Inc. Dept. 201  
2nd & Elm, Hudson, Wis. (Phone: Hudson 523)  
Please rush FREE illustrated literature on:  
"Reach-In" Refrigerator ☐ Upright Freezer ☐

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

## NOW, NOR-LAKE PRESENTS

*New "Reach-In" Refrigerator and Upright Freezer. Free details on these sensational models*

### REACH-IN REFRIGERATOR

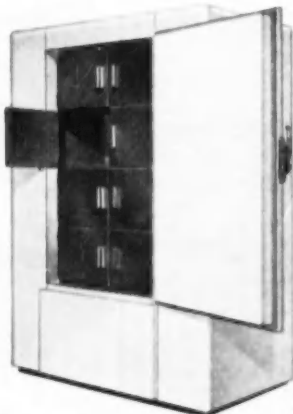
Thick Fiberglas insulation, embossed aluminum interior, heavy-gauge steel exterior and special moisture evaporator that eliminates need for drain connection and makes for economy and long life. Convenient! Maintains constant temperature—needs no adjusting. Stainless steel shelves are moveable. Glass or solid doors. Sizes range from 18 to 28 cu. ft.



### UPRIGHT FREEZER

Fast freezing and economic storing. High density Fiberglas insulation and rustproof, high-conducting copper coils in each shelf mean faster, more uniform freezing. Heater strips around the door prevent sweating. Heavy-gauge steel construction and aluminum liner and shelves for long life. Big capacity—full 27 cu. ft. model shown. Models down to 17 cu. ft. available.

All models available in stainless steel.



For better freezing, cooling or storing, look to the nation's northland and—

**NOR-LAKE, Incorporated**  
Hudson, Wisconsin

Circle No. 42 on Reader Service Card

useful  
**BULLETINS**  
**BOOKLETS**  
**CATALOGS**

(For News of New Products turn to page 60)

**FUNDAMENTALS ARE EXPLAINED** in full-color booklet for the benefit of air conditioning contractors and dealers to give to their prospective buyers. Entitled "What Every Home Owner Should Know About Air Conditioning", the attractive booklet is fast reading and provides a basic schooling on the subject in a light and entertaining manner. Copies of the booklet are available for 10 cents from Heating and Air Conditioning Div., National-U. S. Radiator Corp., Johnstown, Pa.

Circle No. 86 on Reader Service Card

**HELP FOR USERS** of heating and cooling equipment in choosing the correct model needed is offered in a handy pump selector chart contained in Data Sheet No. 345 available from Barnes Mfg. Co., Mansfield, Ohio. Information includes heads, capacities, and other data on pumps and circulators used in air conditioning, refrigeration, and circulation applications. Sheet covers close-coupled and universal drive models designed for efficient pressure boosting, circulation, and recirculation of liquids.

Circle No. 87 on Reader Service Card

**ROUGH-IN DIMENSIONS**, variety of schematics, and other capacity and characteristics of its packaged air conditioners with water-cooled condenser are described in Catalog No. EW5-5715WCC from Drayer-Hanson, Los Angeles. The line, 7 1/2 through 60 hp, is said to offer complete flexibility of operation and application. General specification tables, ratings, electrical current data and hot water coil heating capacities are illustrated graphically in easy-to-read chart form.

Circle No. 88 on Reader Service Card

**DATA ON SIZES** of accumulators for use with flooded ammonia ceiling units is included in Catalog 2C6a by Recold Corp., Los Angeles, covering its water defrost ceiling coils. Dimensional and specification data also is supplied. Graphic illustrations demonstrate outstanding features. Dimensional changes show pitched drain pan and heat exchanger.

Circle No. 89 on Reader Service Card

**PIPING INSTRUCTIONS** are offered readers of Bulletin B-1418 from American Blower Div. of American-Standard, Detroit, Mich. This piece of literature covers the new Type D-1, double-tube steam distributing coils made by the division. Complete physical data is illustrated with an installation-type drawing. A two-page section on selection information includes tables on final air temperature and temperature rise correction factors. Air friction tables also are provided.

Circle No. 90 on Reader Service Card

**SPACE-SAVING FEATURES** of its "GS Series" of gas-fired horizontal winter air conditioners are illustrated in two-color data sheet (Form 147) by Thatcher Furnace Co., Garwood, N. J. Capacities, performance data, dimensions, and shipping weights are listed conveniently for the four models in the group.

Circle No. 91 on Reader Service Card

**THREE DIFFERENT PROBLEMS** of air conditioning are illustrated and their solutions given in data sheet, S-11, from Wiremold Co., Hartford, Conn. Literature demonstrates flexibility and versatility of company's flexible air duct (Type 57-1A) for conducting hot and cold air in high and low-velocity air conditioning systems.

Circle No. 92 on Reader Service Card

**COMPLETE LINE** of centrifugal fan units is covered in Bulletin 103 by Baltimore Aircoil Co., Baltimore, featuring its latest line of "CM" blow-through and "CU" draw-through evaporative condensers. Complete selection data plus detailed dimensional drawings are included.

Circle No. 93 on Reader Service Card

**FULL ENGINEERING** specifications on its "Remcon" low-voltage relays are presented in Bulletin RT-100 by Pyramid Instrument Corp., Lynbrook, N. Y. Service bulletin includes data on theory of operations.

Circle No. 94 on Reader Service Card

**LINE OF EXTRA LOW** temperature (XLT) upright freezers and dairy mix cabinets is pictured and studied in form DM-20 published by Nor-Lake, Inc., Hudson, Wis. Cutaway drawings depict construction details and dimensions.

Circle No. 95 on Reader Service Card

**MANY NEW SIZES** and combinations of its automatic hermetic water chilling unit for air conditioning and refrigeration systems is included in revised, 64-page catalog ("CentraVac") from Trane Co., La Crosse, Wis. Major changes and additions carried are new capacity and pressure drop data that can be arranged for single pass flow through chillers in multiple installations, and new ampere rating system for motors. Also covered are lubrication, selection, capacities, water pressure drop, heat transfer, control system, roughing-in dimensions, piping, and mechanical engineering specifications.

Circle No. 96 on Reader Service Card

**A DEALER'S PLANNING** job has been made easier with the information contained in the specification folder on walk-in equipment by C. Schmidt Co., Cincinnati. Publication has attempted to include all information and sizes necessary for dealers to do an intelligent job. Special design features are illustrated.

Circle No. 97 on Reader Service Card

**RATING TABLE** for new plug-in heaters is included in "Manual Motor Starters", Bulletin GEA-6358A which covers small-size, "100 Line" manual starters for fractional and integral horsepower motors up to 7 1/2 hp. Available from General Electric Co., Schenectady, N. Y., two-color publication includes new features, and application and installation data. Shown are all available open and enclosed forms with dimensions for each.

Circle No. 98 on Reader Service Card

**"CONDENSED CATALOG"** on refrigeration and air conditioning valves, fittings, and accessories has been compiled by Keratest Mfg. Co., Pittsburgh, Pa. Twelve-page catalog contains illustrations, sizes, and prices of fittings, service kits, etc. for every refrigeration and air conditioning service.

Circle No. 99 on Reader Service Card

**HERMETIC CONDENSING UNITS** are illustrated and classified by unit specifications in two-color brochure on "Blu-Cold" line of Lehigh Mfg. Co., Lancaster, Pa. Outstanding features are listed and capacities Btu/h are provided.

Circle No. 100 on Reader Service Card

*you want 'em? we got 'em!*

**28 FULL LINES!**

## **d-h AIR CONDITIONING**

**SPOT-AIRE ROOM-BY-ROOM AIR CONDITIONERS:** #1 d-h LRC's: basic unit, concealed or deluxe cabinet; 4 models, 200 thru 600 cfm. #2 d-h VRC's: concealed or deluxe consoles; 3 models, 200 thru 600 cfm. #3 d-h HRC's: 3 suspended types, 19 models, 300 thru 1750 cfm.

**AIR HANDLING UNITS:** #4 d-h HH Series: ceiling suspended. #5 d-h HHV Series: floor mounted. Both: 14 models, 624 thru 28000 cfm.

**VENTILATING UNITS:** #6 d-h AM: 1752 thru 32250 cfm. **MULTIZONE TYPES:** #7 d-h FLEXAZONE: for simultaneous, independent, variable heating, cooling, ventilating; 1752 thru 32250 cfm.

**PACKAGED AIR CONDITIONERS:** #8 d-h AECR: with built-in evaporative condenser. #9 d-h SCR: with water-cooled condenser. Both, 7 1/2 thru 75 H.P.

**PACKAGED STORE COOLERS:** #10 d-h DYNA-PAC & ROYAL-AIRE: 2 thru 15 tons.

**PACKAGED WATER CHILLERS:** #11 d-h CWG: 7 1/2 thru 75 H.P. #12 d-h CWG-E: attached evaporative condenser. Both 7 1/2 thru 75 H.P.

**EVAPORATIVE CONDENSERS:** #13 d-h PERMA-FAN: 13 models; 5 thru 110 tons.

**COILS:** #14 Extended surface; steam, water, DX. #15 Type "H": small applications, DX or chilled water.

**PACKAGED WATER CHILLERS:** #16 d-h AC: air cooled. #17 d-h WC: water cooled. Both, 2, 3, 5 H.P.

**COOLING TOWERS:** #18 d-h WMT: 13 models, 5 thru 100 tons.

**AIR-COOLED CONDENSERS:** #19 d-h ACC: 5 models, 2 thru 20 tons.

## **d-h COMMERCIAL REFRIGERATION:**

**UNIT COOLERS:** #20 d-h FLOCOLD UNIT COOLERS: over 34° F.; 11 models; 750 thru 6000 cfm. #21 d-h FLOCOLD: under 34° F., water defrost, 7 models, 750 thru 6000 cfm. #22 d-h FLOCOLD: over and under 34° F.; water defrost ammonia, 4 models; 2000 thru 6000 cfm. #23 d-h SPASAYER: WALK-IN BOXES: over 34° F., 7 models; 750 thru 4400 cfm. #24 d-h HOT SHOT: AUTOMATIC ELECTRIC DEFOST: under 34° F., 6 models; 700 thru 3700 cfm. #25 d-h HRC: MEAT CUTTING & PACKAGING ROOM UNITS: 14 models, 500 thru 1750 cfm. #26 d-h FLOCOLD HOT PAN, LIQUOR/MEAT WALK-IN: 8 models, 750 thru 6000 cfm.

**PRODUCT COOLERS:** #27 d-h FLOCOLD (FT & CT): FTWD & CTWD; FTAF & CTAF: 9 models; 1314 to 6733 cfm.

**REPLACEMENT HOUSING:** #28 d-h SPASAYER: 22 to 24 models on job unit coolers.

Want literature? Request by number: #1 thru #28

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_



**drayer-hanson**  
DIVISION OF NATIONAL U.S. RADIATOR CORP.

3301 MEDFORD STREET  
LOS ANGELES 63, CALIFORNIA  
CABLE: FORTRADE LOS ANGELES

Circle No. 43 on Reader Service Card



## Get the lion's share of meaty

facts out of this issue of Commercial Refrigeration & Air Conditioning before you pass it along to the next reader. Leaf through once more: if you want full details on any item, the Reader Service Card will bring them to you quickly. No postage needed.

## A MUST FOR AIR CONDITIONER INSTALLATION AND SERVICING



Here's the first performance-proven, practical and economical, portable processing Vacuum Pump that really eases installation and servicing of refrigeration equipment. This new tool eliminates the use of refrigerator compressor to evacuate systems and connecting tubing.

Removes air, freon, non-condensibles, and with a freon sweep removes moisture without contaminating vacuum pump oil or reducing evacuating efficiency.

Will most effectively evacuate a fully charged system without prior purging.



- Low Cost
- Efficient
- Serviceable
- Light Weight
- Compact
- Portable
- Tested
- Fully Warranted

Write for catalog sheet and details

**Sedco Inc.**

2460 South Main Street  
Adrian, Michigan

Circle No. 44 on Reader Service Card

## '56 Industry Sales Top Billion Dollar Mark

THE AIR CONDITIONING and commercial refrigeration industry went over the billion dollar mark in 1956, according to Department of Commerce figures. Data is based on manufacturers' shipments, and does not take into account value added by distributor and dealer mark-ups or installation costs.

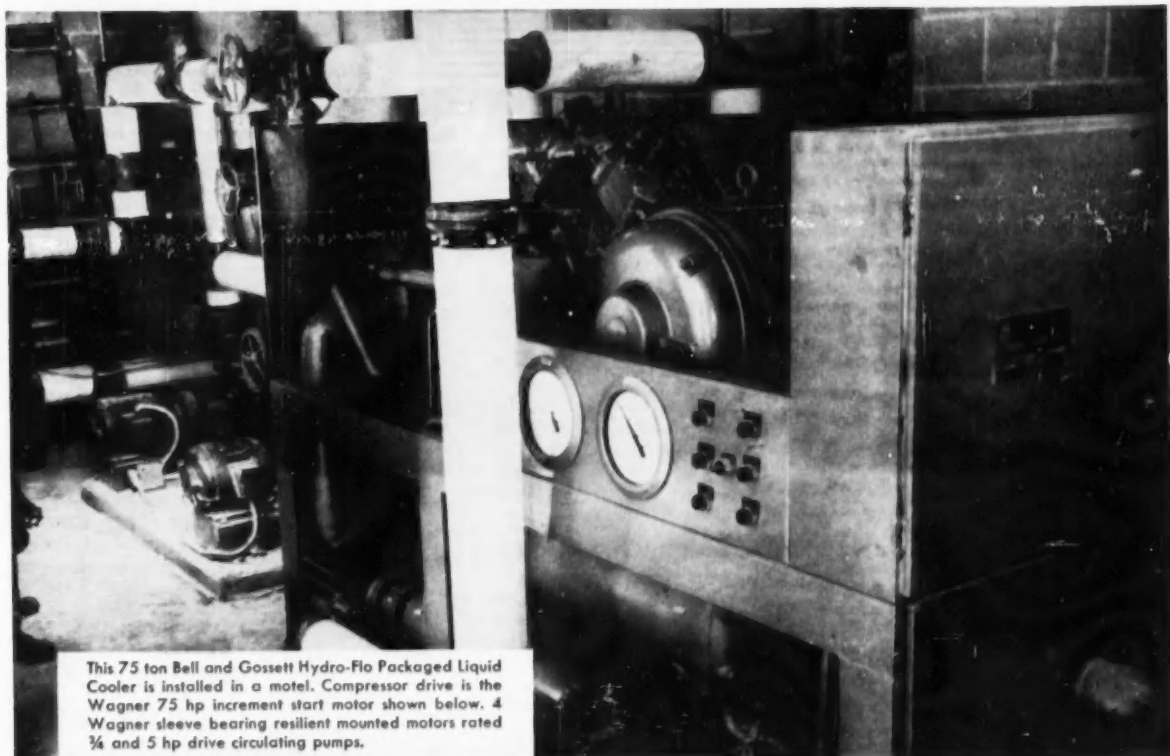
Shipments of air conditioning equipment totaled \$494 million, with residential and commercial equipment accounting for more than \$202.5 million of this amount.

The "Facts for Industry" series, of which this report is a part, has a new number: M35M. The series formerly was designated M52A. It is prepared by the Bureau of the Census, Industry Div., Machinery and Equipment Branch, Washington 25, D. C.

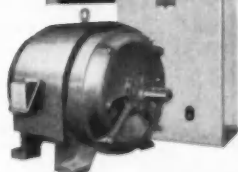
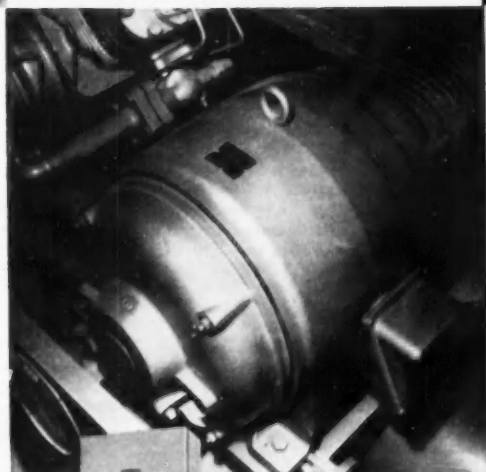
Figures for all major classes of equipment for 1956 and 1955 are shown below. Detailed tabulations will be published in next month's issue.

### AIR-CONDITIONING EQUIPMENT AND COMPONENTS FOR AIR-CONDITIONING AND REFRIGERATION EQUIPMENT: QUANTITY AND VALUE OF SHIPMENTS BY CLASS OF PRODUCT, 1956 AND 1955

Class of product	1956		1955	
	Number of units	Value (\$1,000)	Number of units	Value (\$1,000)
Condensing units (except for household refrigerators), total	619,922	82,290	589,335	71,067
Refrigerants (except ammonia), total	619,864	82,170	589,251	70,913
Air-cooled	550,301	55,146	523,200	46,050
Water-cooled	69,563	27,024	66,051	24,863
Ammonia refrigerants	58	120	88	154
Compressors and compressor units (except for household refrigerators), total	3,780,931	166,220	2,554,031	116,917
Refrigerants (except ammonia)	3,778,823	160,753	2,551,442	109,913
Ammonia refrigerants	2,108	5,467	2,589	7,804
Heat transfer equipment, total	xxx	146,486	xxx	114,064
Evaporative condensers	5,712	10,203	5,883	9,597
Air-conditioning units not self-contained	173,345	43,010	126,087	30,361
Unit coolers, refrigeration	96,754	16,292	97,034	15,053
Other heat transfer equipment	xxx	76,981	xxx	59,053
Packaged air-conditioning equipment, total	xxx	494,028	xxx	349,862
Room-air-conditioners, total	1,828,047	291,445	1,283,234	209,961
Window-sill type	1,818,708	289,017	1,268,161	206,172
Other than window-sill type	9,139	2,428	15,073	3,789
Self-contained air-conditioners (except units intended for residences and except window-sill type)	86,378	90,928	81,880	87,953
Year round air-conditioners, self-contained	18,390	16,890	21,621	21,378
Residential-type, self-contained air-conditioners, except room air-conditioners (without furnace) 2 tons and over	50,109	22,471	35,815	17,978
Refrigeration chassis for air-conditioning (without fan section and furnace)	10,529	5,700	19,644	9,155
Air-conditioning units, remote condenser-type (split systems)	95,200	58,594	37,881	23,437
Other air-conditioning and refrigeration equipment, total	xxx	115,200	xxx	93,312
Centrifugal refrigeration systems	921	29,105	818	25,732
Absorption and adsorption systems and equipment	1,842	9,245	1,738	5,023
Ice making machines	31,416	18,112	31,521	16,369
Packaged liquid chillers	4,215	12,754	2,392	7,534
Mechanical dehumidifiers, refrigerated type, self-contained	148,147	9,358	76,009	5,089
Mechanical drinking water coolers	137,012	19,427	128,304	18,688
Factory assembled water cooling towers	44,548	17,199	41,091	14,877



This 75 ton Bell and Gossett Hydro-Flo Packaged Liquid Cooler is installed in a motel. Compressor drive is the Wagner 75 hp increment start motor shown below. 4 Wagner sleeve bearing resilient mounted motors rated  $\frac{3}{4}$  and 5 hp drive circulating pumps.



Wagner two-step combinations suit most applications. For installations where unusually low inrush of starting current is required, Wagner can furnish 3, 4, 5, or 6 step increment motor-starter combinations.



H57-14

## WAGNER

### Increment Motor-Starter Combinations limit inrush of current when starting big motors

Part-winding starting is a good low-cost way to limit inrush of starting current on large squirrel-cage motor installations. Wagner Increment Motor-Starter Combinations permit such starting—meet all polyphase motor starting recommendations of AIEE-EEI-NEMA—and provide many years of troublefree operation.

These Wagner motor-starter combinations are not bulky, are easy to install, and are *proven* efficient and dependable in operation—Wagner has been supplying these combinations for over 17 years.

Why don't you investigate Wagner Increment Motor operation? Ask your nearby Wagner engineer to take you to an installation in your area. See how it works—judge for yourself, and then let him help you select the combination that meets your requirements. Call the nearest of our 32 branch offices, or write for Bulletins MU-128 and MU-195.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

**Wagner Electric Corporation**

6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

# NEW PRODUCTS

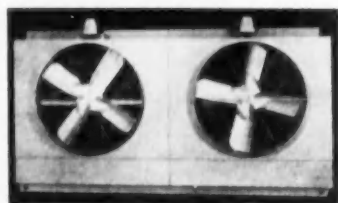
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For News of Useful Literature turn to page 56)

## Cooling Tower

**Product:** Addition of extra-quiet 80 and 100-ton cooling towers to line ranging in size from five through 100 tons.

**Manufacturer:** Halstead & Mitchell, Pittsburgh, Pa.

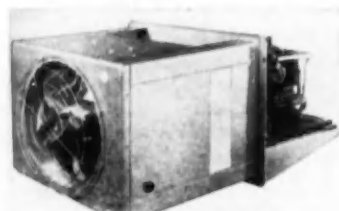


**Features:** Large diameter, four-blade, deep-pitch fans. Belt-driven at low speeds by special weather and splash-proof motors for extra-quiet operation. Sealed fan bearings are lubricated permanently. Gravity-type distributing pans reduce pumping head and cut down windage losses, manufacturer says. Sump water levels are controlled automatically by integral float valves.

Circle No. 120 on Reader Service Card

## Refrigeration Unit

**Product:** Cooling tower and "Uni-Pak" refrigeration system which plugs in for insulated walk-in egg cooling rooms.



**Manufacturer:** Master-Bilt Refrigeration Mfg. Co., St. Louis, Mo.

**Features:** Plug-in unit provides temperatures of 350-370 F. Frost-free evaporator coil, air-cooled condenser, permanently lubricated motor, and pressure control. Available in 1/2, 3/4, and 1-hp models. Fits into

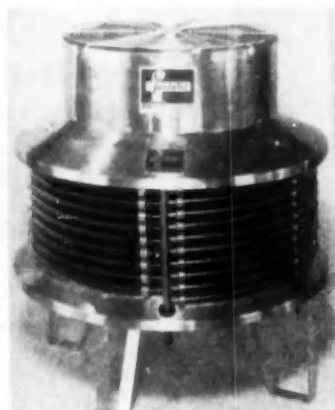
opening of 21 x 21", or 20 x 24". Cooling towers are available in 10 models, in sizes of three through 50 tons. Galvanized steel construction. Can be installed outdoors or indoors. Removable redwood decking, quiet fan, and motor pivot-mounted for easy adjustment of belt tension.

Circle No. 121 on Reader Service Card

## Air-Cooled Condenser

**Product:** "Fandaire" air-cooled condenser.

**Manufacturer:** F5 Air Conditioning Corp., Tulsa, Okla.



**Features:** Circular sloped tube design which permits 100% counter-flow and tube drainage, completely eliminating dead spots common to rectangular condensers. This is accomplished, according to manufacturer, by making each layer of tubes out of one continuous single tube length. Constant slope from inlet and to outlet end of tube since each layer is 2 1/2 diameters lower at outlet end than at inlet end. Greater mean temperature difference, because cool air first contacts coolest gas at periphery of coils giving higher heat transfer rate, lowering condensing temperature and assuring greater degree of sub cooling. No welded joints or return bends to increase pressure drop and lower velocity. Fin tube de-

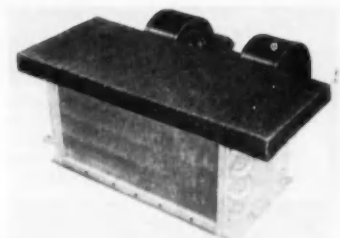
sign, with fin being actual pyramid, thicker at base than at outer edge. Spaced eight fins to inch and made of .020 aluminum tension bonded to heavy wall copper tube, they provide balanced ratio of fin surface to prime surface. Fins also permit more air to move across coil with less static pressure and lower power consumption. Available in 2, 3, 5, 7 1/2, 10, 15, 20, and 30-ton units. Circle No. 122 on Reader Service Card

## Year-Round Unit

**Product:** New "CR" year-round room air conditioning unit with variety of choice of construction, selection of units, and manner of installation.

**Manufacturer:** Dunham-Bush, Inc., West Hartford, Conn.

**Features:** Available in several styles, including cabinet or recessed, vertical or horizontal models. Combination cooling and heating coils.

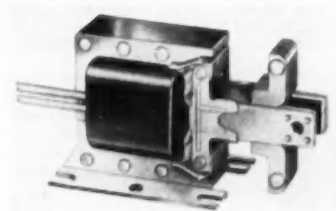


Combination direct expansion and steam coils. Three control kits. Vertical models may be exposed or semi-recessed. Basic units may be recessed completely. Horizontal units with cabinet may be suspended from ceiling. Basic units can be used for unexposed installation. Available in four sizes, 220 through 600 cfm.

Circle No. 123 on Reader Service Card

## Solenoid With Coil

**Product:** Powerful No. 18 a.c. solenoid with "Perma-seal" coil.



**Manufacturer:** Guardian Electric Mfg. Co., Chicago, Ill.

**Features:** Coil winding is encapsulated completely in "Perma-seal" thermo-setting epoxy. Said to prohibit penetration by water, extreme humidity, acid, and alkaline solutions, and many other fluids. Applications include refrigeration and air conditioning equipment for ef-

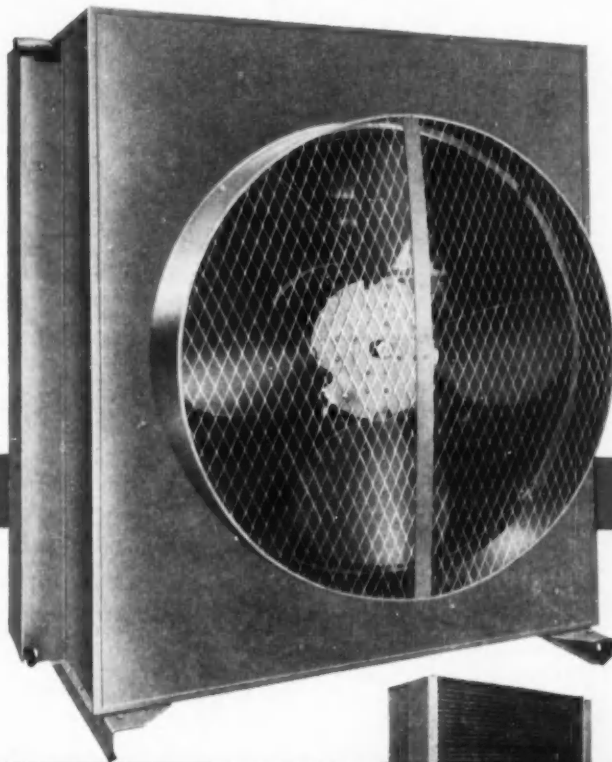
**FOR PEAK ALL-SEASON PERFORMANCE**

# LARKIN ZEPHYRCON

## AIR COOLED CONDENSER

**5 Belt-driven Models—5 to 20 Tons**

**5 Direct-drive Models—2 to 10 Tons**



**BASIC RATINGS**  
FC SERIES—DIRECT DRIVE

Model No.	Capacity at Evaporator BTU/HR	Tons	cfm
FC-2	27,700	2.30	2500
FC-3	37,350	3.21	3500
FC-5	62,500	5.21	5500
FC-8	95,600	7.96	7500
FC-10	124,000	10.3	9100

**BFC SERIES—BELT DRIVEN**

Model No.	Capacity at Evaporator BTU/HR	Tons	cfm
BFC-5	62,500	5.21	5500
BFC-8	95,600	7.96	7500
BFC-10	124,000	10.3	9100
BFC-16	191,200	15.92	15000
BFC-20	248,000	20.6	18200



Now the famous Larkin Zephyrcon is available in two series: Direct drive FC models for economy and minimum maintenance, and belt driven BFC models for the lowest possible noise level.

FC models are available in 2, 3, 5, 8 and 10-ton capacities. BFC models come in 5, 8, 10, 16 and 20-ton capacities. All are engineered for parallel use to accommodate refrigeration or air conditioning systems of virtually any capacity. Multiple circuits are available for all models at no extra cost.

### PEAK PERFORMANCE YEAR 'ROUND

When used with the Larkin Posi-Trol control system, which maintains head pressures in low ambient temperatures, the Larkin Zephyrcon functions at peak performance the year 'round.

Check the features, check the performance data, and make the wise choice in air-cooled condensers—Larkin Zephyrcon. Call your wholesaler or write to us today.

### OUTSTANDING FEATURES

- Patented Larkin cross-fin coil—aluminum fins and staggered copper tubes
- For use indoors or outdoors
- A single large fan on BFC model assures low operating noise level
- Motor on BFC model is standard NEMA design mounted on adjustable base
- Slow speed motor on FC model is permanently lubricated, has overload protection, and is mounted on resilient base
- Casing is of heavy-gauge steel
- Unit finished with baked-on epon-base primer and melamine top coat for maximum protection
- Motor is enclosed in casing, protected from the weather
- Discharge shield available
- Fan guard is standard equipment



**LARKIN COILS INC.**  
519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

This advertisement appears in *Air Conditioning & Refrigeration News*, *Commercial Refrigeration & Air Conditioning* and *Refrigerating Engineering*.

LT-63

Circle No. 46 on Reader Service Card

ficient performance under intense moisture conditions. High dielectric strength, resistance to abrasion and thermal or mechanical shock. Available for intermittent or continuous duty operation. Lifts up to 11 lbs., with  $\frac{1}{8}$ " plunger stroke. Stroke adjustable from 1/32 to 1". Also for 400 cycle operation, d.c.

Circle No. 124 on Reader Service Card

#### Downflow Blower Furnace

**Product:** Small model 35,000, and 45,000 Btu downflow blower furnace.



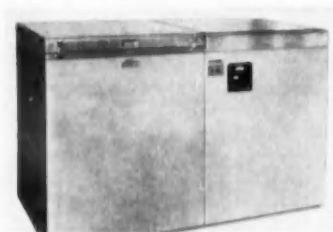
**Manufacturer:** Fraser & Johnston Co., San Francisco, Calif.

**Features:** Only 8 x 27 $\frac{3}{4}$  x 60 $\frac{1}{2}$ ". Incorporates all features of company's larger upflow, counterflow models. May be installed with existing units to augment heating output. Fills need where existing heating systems may be inadequate or where advantages of central heating are desired without need for higher capacity furnaces.

Circle No. 125 on Reader Service Card

#### Chilling Machine

**Product:** Low temperature chilling machine (Model 10L-2) designed for production chilling.



**Manufacturer:** Harris Refrigeration Co., Cambridge, Mass.

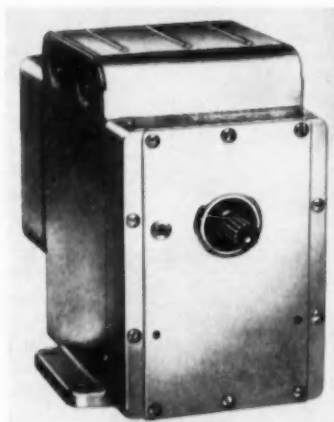
**Features:** Has 10 cu.ft. capacity with chamber 30" long by 24" wide by 24" deep. Outside dimensions are 76" long by 35" wide by 24" high. Temperature control ranges

from 0 to -150 F. Other chamber sizes are available from 6 to 45 cu. ft. with configurations to accommodate sheets, bars, or irregularly shaped parts. Can be filled with convection fluid for rapid cooling of parts by liquid immersion. Can be provided with air circulator to chill parts in air. Chilling chambers are constructed with double walls of 16-gauge steel, electrically welded and finished with noncorrosive coating of hot-sprayed zinc. Chamber walls are insulated with at least 5" of silica aerogel which has K factor of .11 at -150 F. Honeycomb cooling system eliminates easily damaged piping around chamber walls. Coolant channels are embossed between double steel walls. Channel design provides direct refrigerant contact with 96% of cooling chamber surface as well as lending structural strength, manufacturer says.

Circle No. 126 on Reader Service Card

#### Motor Operator

**Product:** Oil-submerged, spring-return, proportional-type electric motor-operator designed to control dampers in heating, ventilating, and air conditioning systems.



**Manufacturer:** Barber-Coleman Co., Rockford, Ill.

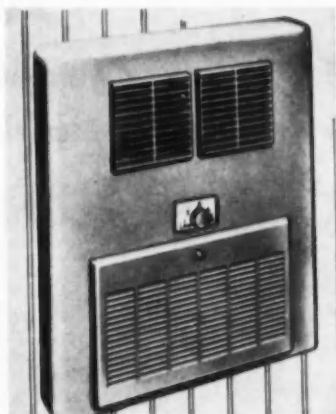
**Features:** New-type gear train and drive are submerged in oil and sealed in die-cast case. Motor may be mounted in any position. Auxiliary switches readily are accessible and easy to adjust. Output shaft is power operated in both directions to position controlled device as required when power is on and maintains this position with internal holding circuit. Enclosed spring return drives controlled device to its normal position on a power interruption. Available in 24, 115, 208, and 230 volts.

Circle No. 127 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

#### Fan-Coil Unit

**Product:** "Capitolaire VRS" fan-coil unit designed to custom tailor indoor weather to each room of home or small building.



**Manufacturer:** National-U.S. Radiator Corp., Heating & Air Conditioning Div., Johnstown, Pa.

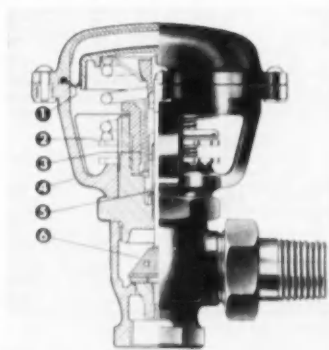
**Features:** Fits flush with wall. All outlet connections are concealed. Fits between studs located on 16" centers. Can be tied into existing water heating equipment, or will function as integral units of year-round home heating and air conditioning systems. Aluminum fins on copper tubes provide greater surface area and promote rapid heating and cooling, manufacturer says. Air is cleaned through filter, easily removable without use of tools. Variable speed rheostat control makes it possible to adjust output of each unit. Air is circulated through room through twin-discharge grills, each adjustable in four directions.

Circle No. 128 on Reader Service Card

#### Adjustable Valve

**Product:** Corrosion-proof, adjustable packless valve.

**Manufacturer:** Powers Regulator Co., Skokie, Ill.



**Features:** Externally adjusted. Easily accessible spring. Made of Monel. Has 5 psi range. May be ad-

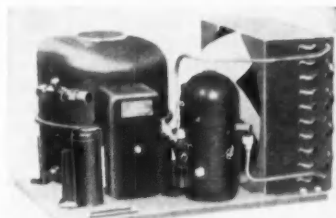
justed to close between 5 to 12 psi top pressure. This enables single valve to meet variety of conditions. Lower housing made of high impact phenolic which eliminates electrolytic corrosion between housing and internal metal parts, according to manufacturer. Said to resist heat distortion well over 300 F. Silicon diaphragm is 10 sq.in. in area. Provides 60% greater closing power than previous models, manufacturer says. Diaphragm housing is 9/16" lower, enabling valve to fit into smaller space. Molded swivel (pop-pet) and stem guide with two bearing points for perfect alignment. Top easily removed so that bronze bellows can be replaced without draining water system, shutting off steam, or removing valve from line. Housing can be rotated 360 degrees independently of spring setting, enabling valve to be installed neatly with minimum of piping. Can be locked in place to prevent tampering on exposed installations.

Circle No. 129 on Reader Service Card

#### Condensing Unit

**Product:** Model BRH45, air-cooled, 1/2 hp condensing unit.

**Manufacturer:** Evansville Div., Bendix-Westinghouse Automotive Air Brake Co., Evansville, Ind.



**Features:** Ideally suited for those applications involving evaporator temperatures up to 40 F, where full 1/2 hp capacity is not required, but greater than 1/3 hp capacity is desired. Overall dimensions only are slightly larger than 1/3 hp dimensions. Capacity is approximately 25% greater than 1/3 hp capacity.

Circle No. 130 on Reader Service Card

#### Spray-Type Humidifier

**Product:** "Mist-Master" spray-type humidifier for use on any type of warm air heating system including reverse flow and stow aways.

**Manufacturer:** Cronstroms Mfg., Inc., Minneapolis, Minn.

**Features:** Said to fulfill need for adequate humidity in cold, dry areas by adding moisture evaporated into air stream by-passed between warm and cold air plenums, manufacturer says. Continuous mist is sprayed against custom woven plastic fiber pad and evaporated into system completely filtering air and

water. Water purifier has double screen device that effectively traps solids in water before they reach nozzle, according to manufacturer. Fabricated of rust proof aluminum and finished with baked enamel to resist pitting and corrosion.

Circle No. 131 on Reader Service Card

#### Conditioning Equipment

**Product:** Line of all-purpose, air-cooled air conditioners and heat pumps.

**Manufacturer:** Gibson Refrigerator Co., Div. of Hupp Corp., Greenville, Mich.

**Features:** Self-contained and complete with simplified controls for

fully automatic operation. Prefabricated duct work cuts with knife. Easy to install. Available in 2, 3, and 5 hp.

Circle No. 132 on Reader Service Card

#### Gas-Fired Furnace

**Product:** Three additions to "Trim-Boy" line of gas-fired, warm-air furnaces.

**Manufacturer:** Coleman Co., Inc., Wichita, Kans.

**Features:** Largest of three is 165,000 Btu upflow model. Both upflow and down-flow models are rated at 135,000 Btu. Operate with perimeter, conventional, or small pipe systems including company's "Blend-

## C-D MOTOR CAPACITORS ARE

# THREE WAYS BETTER

1. C-D Motor Capacitors start out under the most rigid raw material controls. Passable ingredients are discarded in favor of only the highest purity and quality.
2. C-D "know-how" through research, rigid control in processing and brutal life-testing "beyond the call of duty".
3. Proven dependability in field service for over 44 years. Year after year C-D continues to serve its many satisfied customers. There are literally millions of C-D Motor Capacitors in use today.

Always insist on C-D Capacitors—there's a right type for every motor made. Your C-D Distributor has it. He's listed in your classified 'phone book. Dept. CR-12, Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.

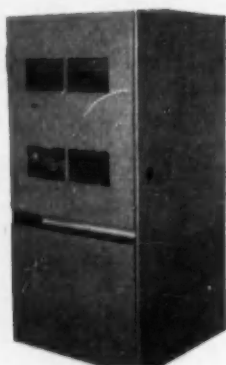


## CONSISTENTLY DEPENDABLE CORNELL-DUBILIER CAPACITORS

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE AND HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; SANFORD AND FUGAY SPRINGS, N. C.; SUBSIDIARY, THE RADIART CORPORATION, CLEVELAND, O.  
THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 47 on Reader Service Card

Air" system. Equipped with slotted head burners which tailor flame to combustion chamber. Heavy-duty heat exchangers. Fan and limit controls. Thermo safety pilot and pressure regulator. Flu outlets in front save floor space and simplify vent-



ing. Belt-driven blowers provide quiet air delivery for both conventional and small pipe systems. Burners can be removed for cleaning without dismantling controls. Filters can be changed quickly and easily. Large unit dimension: height, 63"; depth, 30"; width, 29½". Small models: height, 63"; depth, 30"; and width, 25".

Circle No. 133 on Reader Service Card

#### Walk-In Cooler

**Products:** Model LTA walk-in cooler.

**Manufacturer:** C. Schmidt Co., Cincinnati, Ohio.



**Features:** Galvanized steel floor flush with door that reduces cleaning time and improves sanitation, according to manufacturer. Abrasive material is used to make non-skid surface. Three styles available, in addition to elevated floor.

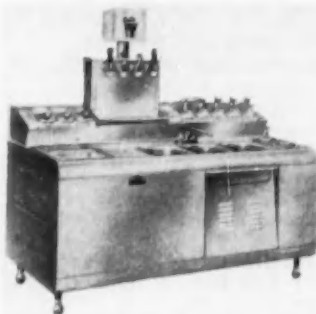
Circle No. 134 on Reader Service Card

#### Fountain Dispenser

**Product:** "Cold-A-Mix" fountain fixtures that provide instantaneous streams of carbonated water and ready-mixed carbonated beverages at touch of tap.

**Manufacturer:** Dunhill Food Equipment Corp., Brooklyn, N. Y.

**Features:** Made for immediate installation on all of the manufac-



turer's existing soda fountains. Fully refrigerated stainless steel panel which keeps carbonated beverages ice cold to very minute they are drawn into glass. No warm first drinks. Available in banks of three, four, and five dispensing taps. Accompanying plain water tap is included in installation. Includes fine mixing stream as well as gentle filling stream. Slotted drip tray. Clear plastic mixing spout.

Circle No. 135 on Reader Service Card

#### Heated Display Case

**Product:** Heated display case. **Manufacturer:** Lern, Inc., Chicago, Ill.



**Features:** Humidity control prevents dehydration and drying out of foods, keeping them warm, moist, and more appetizing. Easily adjustable heat control also is provided with temperature range of 90 to 150 degrees for varying heat requirements. Plugs in ready for operation. Self-contained with plenty of storage space.

Circle No. 136 on Reader Service Card

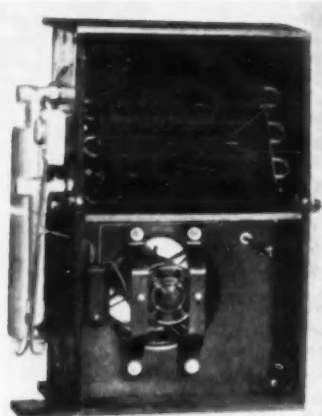
#### Heating-Cooling System

**Product:** "Percojet" electric heating and cooling system which needs no furnace, chimney, or ducts.

**Manufacturer:** Electric Heating and Cooling, Inc., Newark, N. J.

**Features:** Electric "heat pump" with each unit in system circulates heating medium when needed. Has no moving parts for quiet perform-

ance. Individual room comfort is provided, winter or summer, without affecting conditions in adjoining rooms or areas. Each area to be conditioned has its own individual unit connected with system, except when system is used for heating only.

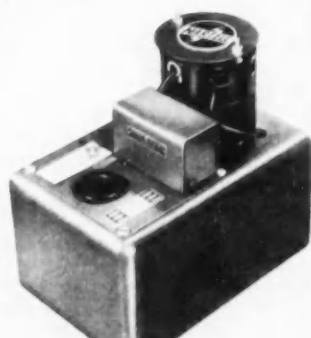


When used for both heating and cooling, each unit is connected to common supply. For cooling, chilled water from a deep well, spring, or remotely located water chiller is circulated. When heating is required, "heat pump" begins circulating hot water within each unit automatically. Each unit has fractional horsepower motor with centrifugal fan having variable speed control that will adjust fan speed as necessary. Maximum heating capacity of single unit is rated up to 11,400 Btu/h at 175 cfm with entering air at 70 F. Circulation of 2 gpm of 180 F water through system. Units are available in 115 or 230 volts a.c.

Circle No. 137 on Reader Service Card

#### Condensate Pump

**Product:** New line ("Centriflow") of automatic, cast-aluminum pumps for condensate removal.



**Manufacturer:** Hartell, Inc., Warminster, Pa.

**Features:** Available in two sizes for either 115 or 230-volt. Model A-1 pumps to height of 10' and Model

...whether you need  
**2 CIRCUITS or 2 DOZEN!**



*Buy*

**SPORLAN REFRIGERANT DISTRIBUTORS** for Peak Performance  
*regardless of Load or Evaporator Temperatures!*

Because Only Sporlan with its Famous Interchangeable Nozzle  
 can offer you ALL THESE IMPORTANT ADVANTAGES

It is perfectly adaptable to all refrigerants. The nozzle is removeable for visual, air, or test wire inspection of each individual circuit at both the distributor and coil connection. The nozzle selection can be made at the factory or on the job. The coil manufacturer can stock coils with the distributor already attached and select the proper nozzle later for the conditions specified. The capacity can readily be varied on the job if the application changes or conditions are not as expected.

In addition, Sporlan Refrigerant Distributors offer flare, solder, or flange models with a large selection of number of outlets, circuit sizes and capacities. Brass or aluminum bodies are available for Refrigerants 12, 22 and Carrene 7. Steel or aluminum for Ammonia. They are adaptable to any standard thermostatic expansion valve and are available for high, medium, and low temperature use. They are ideal for OEM units or field built-up jobs. They permit final coil pressure leak test without damage to valve.

*So... If you are a packaged unit or coil manufacturer, contractor or service engineer... The Sporlan Refrigerant Distributor, with over 15 years of Peak Performance Leadership, is the one for you!*

*Better still... Install the famous Sporlan combination of Catch-All, Solenoid Valve, and Thermostatic Expansion Valve along with it and get Peak Performance right down the line!*

**SPORLAN VALVE COMPANY**  
 7525 SUSSEX AVENUE • ST. LOUIS 17, MO.

EXPORT DEPT. AD. AURIEMA INC., 189 BROAD STREET, NEW YORK



A-2 to height of 20'. Sand-cast-aluminum reservoir with integrally cast-pump housing. Top inlet system provides sump for accumulation of sediment. Requires no seals and liquid level control is automatic. Stainless steel pins to attach impellers to shaft, thereby eliminating any chance of impellers becoming loose or slipping on shaft, according to manufacturer. All units are factory adjusted. Self-contained. Overall dimensions including motor are 6" wide, 9" long, and 9" high.

Circle No. 138 on Reader Service Card

#### Ice Storage Bin

**Product:** Addition of ice storage bins to line of commercial refrigeration equipment.

**Manufacturer:** Nor-Lake, Inc., Hudson, Wis.



**Features:** Portable (shown) and stationary model permit efficient storage and service of ice cream from locations other than those of ice makers. Both have 150 lb. capacity. Portable unit has 10" back wheels and front swivel casters are coupled with narrow 18" width. Tubular steel push handle facilitates movement. Fiberglass insulation. 33" high and 32" long. Stationary model suited especially to remote ice service in taverns and restaurants. Sloping front facilitates entry into galvanized bin. 6" permit easy cleaning beneath unit. Dimension enamel finish trimmed with stainless steel door and face. Measures 24½" wide, 22" deep, and 39" high.

Circle No. 139 on Reader Service Card

#### Air Handling Unit

**Product:** Compact air handling unit ("Rheumaire") for commercial installation of central air conditioning.

**Manufacturer:** Home Products Div., Rheem Mfg. Co., Chicago, Ill.

**Features:** Weighs only 150 lbs. Can be installed easily by two men, even when installation is on ceiling. All operating components are enclosed in housing. Blends into variety of color schemes and ceiling textures. Both intake and outlet grilles are painted in contrasting colors. De-

liver 40,000 and 57,000 Btu/h of cooling. Designed for operation with company's standard condensing unit. Twin blowers each have own motor. Measures only 19" high, 41½" long, and 33¾" wide. May be supplied with supply and return air grilles.



Access panel permits serviceman to reach any of components. Panel appears in bottom of unit when suspended from ceiling. When used for attic installation with ductwork, unit is inverted with access panel on top of unit. Cooling coil drains properly in either position. Refrigeration connections and condensate drains as well as electrical connections, can be made from either side.

Circle No. 140 on Reader Service Card

#### Check Valve

**Product:** Addition of 5/8" size to "Magni-Chek" valve line with thread-solder connection which offers 50 different installations with just four valve sizes: ¼, ⅜, ½, and 5/8".



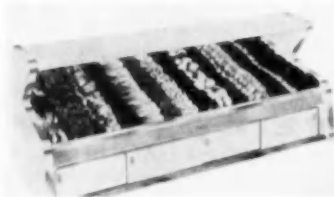
**Manufacturer:** Watsco, Inc., Hialeah, Fla.

**Features:** No springs thus no back pressure. Small floating disc controlled by life time alnico magnet does work. Thread solder connection, which is standard male flare fitting with removable inserts for flare or solder or combination of both, allows installation with no additional parts or tools.

Circle No. 141 on Reader Service Card

#### Produce Merchandiser

**Product:** "Stadium" line of produce merchandisers designated Series 500.



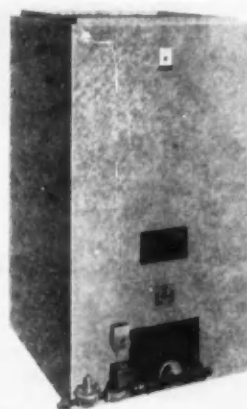
**Manufacturer:** Sherer-Gillett Co., Marshall, Mich.

**Features:** Deeper display well. Available in eight and 12' lengths, and in either single or double-duty styles. Superstructures are available in 69 and 56" overall heights. Finished in Nubelon S and feature extruded, anodized aluminum trim and cart guard. Available in several colors. Recirculated air system standard equipment. Insulation is of closely-fitted, high-density material. Sandwich-type, laminated, closed-cell plastic insulation used in ends for added structural strength.

Circle No. 142 on Reader Service Card

#### Gas-Fired Furnace

**Product:** Four new-gas fired gravity furnaces (Model GG) ranging in size from 90,000 to 145,000 Btu input.



**Manufacturer:** American-Standard Air Conditioning Div., New York, N. Y.

**Features:** Incorporate single port up-shot burner. Easily accessible front clean-out plate. Full metal bottom pan for dust-tight enclosure. All heated areas have ½" thick foil faced fiberglass insulation. Two smaller sizes come assembled. Requires minimum of floor space. 110,000 Btu model occupies only 28 x 28" and stands just 55½" high. All units are equipped with thermostat, gas pressure regulator, pilot valve, and draft hood. Optional limit control, humidifier, and day-night thermostat, also are available.

Circle No. 143 on Reader Service Card

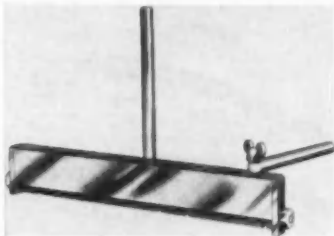
#### Hand Folder

**Product:** Hand folder designed to turn drive cleat folds on sheet metal duct or fittings.

**Manufacturer:** Duc-Pac, Inc., East Longmeadow, Mass.

**Features:** Made of cadmium plated steel designed to fold either ¼ or ½" folds on 2¼, 3¼, 5, 6, or 8" duct sizes. When not in use,

handles can be turned flush with body for easy carrying in pocket or tool kit. Square drive cleat fold can be made by placing tool on



edge to be turned and pulling down one of the handles. No need for flattening fold with pliers as folder leaves perfect turn, manufacturer says.

Circle No. 144 on Reader Service Card

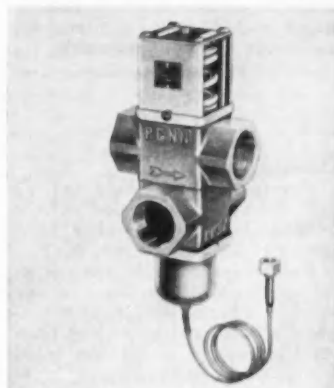
### Water Regulating Valve

**Product:** Line of water regulating valves (Series 3246) especially designed for maintaining head pressure regardless of water temperature returning from cooling tower.

**Manufacturer:** Penn Controls, Inc., Goshen, Ind.

**Features:** Provides automatic regulation of water flow, to keep water temperature from falling too

low for efficient operation because of low air temperatures at tower. Three-way action permits water to be diverted from condenser into bypass line to tower nozzles. This eliminates adverse effect on nozzles or



wetting surfaces due to flow restrictions, manufacturer says. Available in  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1, and  $1\frac{1}{4}$ " NPT sizes for both R-12 and R-22 refrigerants.

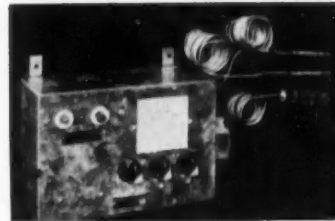
Circle No. 145 on Reader Service Card

### Refrigerator Control

**Product:** Auxiliary control for installation on commercial refrigerators to insure safer food storage.

**Manufacturer:** Bossman Controls Co., Chicago, Ill.

**Features:** Enables colder temperatures and higher humidity con-



ditions with automatically controlled frost-free drain pans and coils, manufacturer says. On refrigeration systems (that have needed capacity) one can dial temperatures down to 28-32 F, to store perishable inventories longer, more safely, and without shrinkage. Three thermostats operate in perfect control sequence. All are independently controlled. Installation requires no piping or valving and minimum wiring.

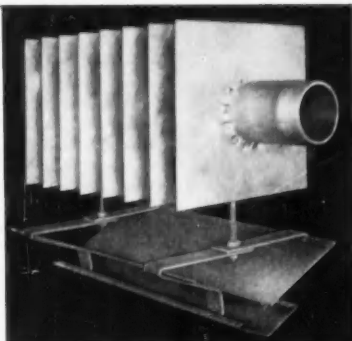
Circle No. 146 on Reader Service Card

### Hot Food Cabinet

**Product:** Hot food cabinet.

**Manufacturer:** TherMcCold Div. of McCall Refrigeration Corp., Hudson, N. Y.

**Features:** Thermostatically con-



## Prestfin Pipe

Is ideal for cold storages, freezers, food processing and meat packing plants, etc. Manufactured from 2" dia. F. W. steel pipe and 7" square 14-gauge fins, Frick finned pipe gives maximum heat transfer per dollar invested. Each fin is bonded to the pipe under tons of hydraulic pressure. All assemblies are hot-dip galvanized.

These new Frick finned coils require only one-quarter of the space needed for bare pipe having the same surface. See your nearest Frick Branch or Distributor for complete details, or write for Bulletin 158.

DEPENDABLE REFRIGERATION SINCE 1882  
**FRICK CO.**  
WAYNESBORO, PENNA., U.S.A.

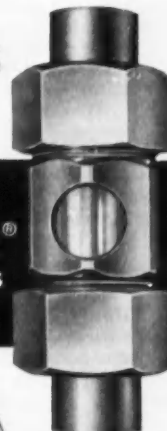
Circle No. 49 on Reader Service Card

& AIR CONDITIONING • DECEMBER, 1957

## PROVED ON THOUSANDS OF INSTALLATIONS

"250" SERIES  
**LIQUID EYE®**  
POSITIVE SEALING INDICATORS

designed to save you even more time and money



### DESIGN FEATURE

extension-gasket . . .

**ALL ONE-PIECE!**

A built-in gasket that's always in place for positive sealing and fool-proof assembly.



6 sizes now available:  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ ",  $1\frac{1}{8}$ " and  $1\frac{3}{8}$ " O.D.S.

The "250" has all the proved Liquid Eye advantages plus these newly engineered features:

- smaller—more compact, simplified design.
- preformed copper extension eliminates need for separate gaskets—foolproof installation.
- complete, self-contained, economy unit.

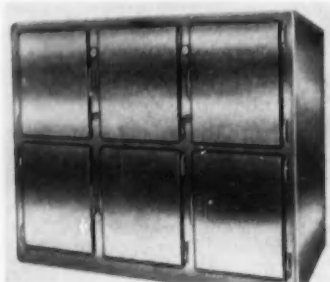
Write today for catalog E-57 covering the complete Allin line.



**ALLIN MANUFACTURING CO.**  
410 N. Hermitage Ave., Chicago 27, Illinois  
Over 1,000,000 Liquid Eyes Sold to Date!

Circle No. 50 on Reader Service Card

trolled. Glass doors are available in top or all sections of cabinet. Equipped with exterior thermometer to indicate that contents are being ped with exterior thermometer to indicate that contents are being



maintained at correct temperatures. Ideal for wheel-in applications for large institutions. Can receive tray carts loaded with trays of food filled at work area which can be wheeled into cabinet and then wheeled out when needed.

Circle No. 147 on Reader Service Card

#### Beverage Wall Case

**Product:** Dairy and beverage wall cases in 6, 8, 10, and 12' lengths.

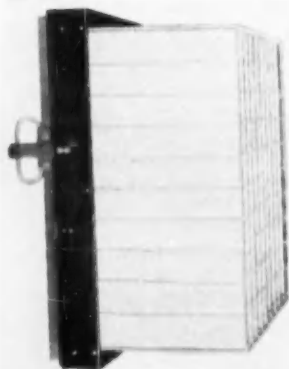
**Manufacturer:** Evans Mfg. Corp., Mt. Vernon, N. Y.

**Features:** Five levels of sturdy, adjustable wire shelves which permit display of large quantities of food and beverage products. Heavy-gauge, all-steel, welded construction. Huge, easy sliding doors of stainless steel. Heavy-duty self-defrosting blower coil. Booster coil in lower compartment. White porcelain exteriors and interiors. Glare-free illumination throughout with fluorescent lighting.

Circle No. 148 on Reader Service Card

#### Air Filter

**Product:** After-filter (HP) for use with permanent filters where extra air cleaning efficiency is required.



**Manufacturer:** Farr Co., Los Angeles, Calif.

**Features:** Flame-proof. Consists of deep folded pleats of special media permanently attached to chip-board reinforcing panels. Filter fits into wire retainer which in turn attaches to most existing filter holding frames on downstream side.

Circle No. 149 on Reader Service Card

#### Cleaning Chemical

**Product:** New chemical (X 200) cleaning burnt sealed units.

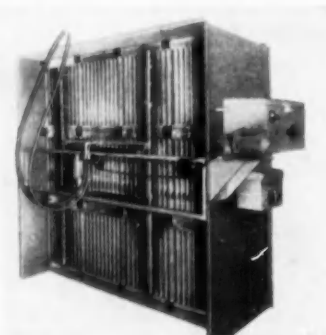
**Manufacturer:** Sealed Unit Parts Co., Inc., New York, N. Y.

**Features:** Said to remove all foreign deposits including rust and scale, in minutes, and remove vaporized plastic insulation which coats metal parts after sealed unit burns out. All metal parts including brass and copper fittings come out bright enough to eliminate brightening solution, manufacturer says.

Circle No. 150 on Reader Service Card

#### Electronic Air Cleaner

**Product:** Line of electronic air cleaners (Hi-C "High Capacity") designed for installation in forced air ventilating systems of commercial and industrial buildings.



**Manufacturer:** Electro-Air Cleaner Co., Inc., Pittsburgh, Pa.

**Features:** Ionizing-collecting cell has face velocities up to 600 fpm, savings in face area of 40%, and maximum dirt loading capacity. Ionizer design provides maximum area of electron discharge by using inside curve on face of negative. Plate spacing reduced to 5/16" to increase intensity of electrostatic field between collecting plates. Available with both horizontal or vertical air flow. All parts, including selenium rectifiers, are guaranteed for five years, manufacturer says.

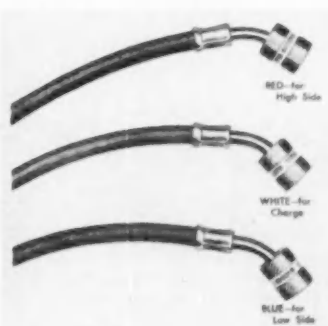
Circle No. 151 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALE**

#### Color Charging Lines

**Product:** Color-coded charging lines.

**Manufacturer:** Madden Brass Products Co., Aurora, Ill.



**Features:** In three colors: red for high side; white for charge; and blue for low side. Line tracing is eliminated as it is always certain just where hose is hooked up. All brass barb and ferrule for positive seal. Tubular gasket that won't pop out, according to manufacturer. Finger-grip knurled nut for easier handling. Packaged in polyethylene bag.

Circle No. 152 on Reader Service Card

#### Wall Display Case

**Product:** High-temperature, island wall display case, Model RIS-35.

**Manufacturer:** Peerless Equipment Corp., Mount Vernon, N. Y.

**Features:** Self-contained. Both front and back of case finished alike. Can be installed as part of island



counter to permit access to its contents from either aisle. Also can be used as pass-thru. Length, 54", depth, 30", and height, 75". 1/3-hp compression. Stainless steel exterior front and exterior back. Aluminum exterior sides and interior 35 cu.ft. capacity. Four sliding glass doors — two front and two back.

Circle No. 153 on Reader Service Card

### Steam Coil

**Product:** Steam coil ("Even-temp") which maintains uniform surface temperatures over entire face area regardless of fluctuating load demands.

**Manufacturer:** Marlo Coil Co., St. Louis, Mo.

**Features:** Said to provide uniform leaving air temperatures free of all stratification, with consistency necessary for precise control in heating systems. Steam distributing headers and tubes combined with continuous plate-type fins which contact entire surface of condensing tubes assure uniform heat distribution even when operated at 10% of full rated capacity, manufacturer says. Tubes are pitched in casing for rapid condensate drainage and ease of installation. Each coil has steam supply connection and condensate connection on same end, regardless of size.

Circle No. 154 on Reader Service Card

### Packaged Cooler

**Product:** Complete line of packaged store coolers, designated D-H "Royal-Aire".

**Manufacturer:** Drayer-Hanson, Los Angeles, Calif.

**Features:** Ratings of 3, 5, 7½, 10, and 15 hp. Overall dimensions range from smallest 1200 cfm; height with plenum 77", width 38", overall depth 21½" to largest cfm unit, 6000 cfm; height with plenum, 99¾", width 86", and overall depth, 29¼". Three models in line have single compressors; the larger two models carry two compressors. Hermetically-sealed on spring-mounted base, yet easily serviced on job. Motors are protected by thermal overload elements in automatic starter and by temperature-controlled thermal elements on compressor. Said to eliminate danger of re-evaporation because condensate is collected below unit's filter, with filter remaining dry at all times. Shell and coil-type, water-cooled condenser fitted with finned, continuous copper tubing. All internal joints are eliminated. Shoulder-height controls allow for selection of settings suited to wide variety of conditions.

Circle No. 155 on Reader Service Card

### Room Thermostat

**Product:** Room thermostat with straight-line styling.

**Manufacturer:** General Electric Co., Morrison, Ill.

**Features:** Squared to blend with design requirements in contemporary homes. Bold-face temperature readings that are visible from across average size room. Measures only 1-23/32" thick, 2¼" high, and 4¾" wide. Companion control has functional base attachment which fits directly under thermostat. Adds but 13/16" to thermostat's height.

Both thermostat and air conditioning control can be mounted as one unit on wall surface. Thermostat case is beige. Control is charcoal grey. Clear crystal protects unit's face. Adjustable heat anticipator provides proper heat anticipation for wide range of control circuit currents, manufacturer says. Comfort dial lengthens or shortens period of running by increasing or decreasing effect of preheat. Actuated by flat thermo-sensitive bimetallic thermometer. Two-point mounting on subbase relieves any stress if base is placed unevenly on wall.

Circle No. 156 on Reader Service Card

### NEW SANTURCE HOTEL GETS 400-TON SYSTEM

Worthington air conditioning equipment will provide year round comfort for patrons of the new La Concha Hotel now being built in the exclusive Condado District of Santurce, Puerto Rico.

Consisting of two 200-ton hermetic refrigeration units, 251 induction circulators, spray coil dehumidifier and heating coils, the equipment will air condition approximately 150,000 sq. ft.

## End All Doubt!



### The MARSH Serviceman TIMER

#### SHOWS:

Total running time  
Total elapsed time  
on 24-hour dial



#### 115 VOLT, 60 CYCLE MODEL

For testing smaller units with compressors of ¾ hp. or less. Operates in series . . . Simply plug equipment into timer; timer into wall outlet.



#### 230 VOLT, 60 CYCLE MODEL

For testing larger installations regardless of horsepower. Operates in parallel. Note well shielded alligator clips for attaching to motor terminals and power lines.

This great addition to the "Serviceman" line does a vital job supremely well. Its white hairline pointer shows total time of test; red pointer shows total running time. It is easier to read, use, and interpret than a recorder . . . has no charts or leaky pens to bother with . . . yet it is very moderately priced.

Two models (opposite) cover all conditions. Note sturdy case finished in attractive hammerloft gray with sharp white numerals on black dial . . . also suction-cup feet for firm placement without damage to finish. This is the instrument you've been waiting for. Write for details, or

#### See your Wholesaler

MARSH INSTRUMENT CO., Sales Affiliate of Jas. P. Marsh Corporation  
Dept. P, Skokie, Ill. • Marsh Instr. & Valve Co. (Can.) Ltd., 8101 10th St.,  
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## MARSH

### Refrigeration Instruments

GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

Circle No. 51 on Reader Service Card

**WIN A PRIZE!** Send your cartoon suggestions on the subject of "Genetron" Super-Dry Refrigerants to: "Genetron" Dept., General Chemical Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y. WE WILL PAY \$10 for every cartoon... idea used and print your name and address.



*It says, "Always use **genetron**® bone-dry refrigerants!"*



Hold on there! Back up a bit: you just rushed by some pretty important information. Before you pass this copy of Commercial Refrigeration & Air Conditioning on to the next reader check it over once more. Did you spot the New Products pages? How about this month's selection of free data books and catalogs? You'll find both listed on the contents page. The handy Reader Service card will bring you details on any of them. Just fill it out and drop it in the mail.

## DEFROSTING . . .

*Continued from page 32*

recirculation can be accomplished with a three-way valve and booster pump as shown in Fig. 2. The valve shuts off the incoming refrigerant and the pump recirculates the brine already in the coil.

Dry finned-type unit coolers used to hold blast freeze tunnels down as low as -60 F are sufficiently defrosted by spraying them periodically with ordinary cold water (Fig. 3). Water at a temperature no lower than 45 F and under a pressure of 60 psi is directed over the coil in a coarse spray from 2" pipe headers hung 10" over the coil.

The liquid and suction valves should be closed before the water is turned on. As the pressure in the coil comes up to the corresponding temperature of the water, the frost and ice melts and is washed away. Experience has shown that a large volume of water does more good than water at a higher temperature. In fact, warm water shouldn't even be used, because too much pressure might be built up in the coil.

To prevent the water-spray pipe from freezing, it should be installed with sufficient slope for ready drainage, and a drip loop should be located near the shutoff valve. A drain should be provided for the drip loop to prevent any leakage from entering the spray header or its feed line tributaries within the refrigerated area.

## D-H UNITS USED IN

### 4 FLA., P.R. PROJECTS

Some 400,000 cfm's worth of air handling equipment is scheduled for shipment to Florida from Drayer-Hanson, Los Angeles, — all of it being for major construction.

Projects include air conditioning equipment for the Diplomat Hotel, which will utilize 17 large ceiling-suspended units; the Marina Apartments, with five major units; and the DuPont Plaza Bldg., to be set with a total of 38 floor-mounted and ceiling-suspended types. All projects are in Miami.

A fourth project is the San Juan Hotel, San Juan, Puerto Rico, with 15 major air handling units.

## NEW CHASE BRASS TUBE MILL NOW OPERATING

What is said to be the country's largest and most highly automated copper tube mill is now in operation at the Cleveland plant of Chase Brass & Copper Co.

Completion of this multi-million dollar expansion program, begun in 1955, provides for the first time uninterrupted production of copper tube, from billet to finished tube, on electronically-controlled, high-speed machines.

The new tube mill is situated alongside Chase's brass and copper rod, bar, strip and sheet production divisions, and will augment tube production out of Chase's home-town mill in Waterbury, Conn.

Publicly viewed for the first time on Oct. 31, the copper tube mill contains some of the world's newest and largest tube producing and inspection equipment. Included is a drawbench, believed to be the world's largest, 400' long and capable of simultaneously drawing five tubes from an initial length of 43' to straight lengths up to 210'.

New also is a magnetic defect detector that performs critical internal and external inspections, automatically marking and rejecting faulty tube.

Executives from Chase's Waterbury plant at the Oct. 31 showing included A. J. Armstrong, tube sales manager, and E. J. Malvey, advertising manager.

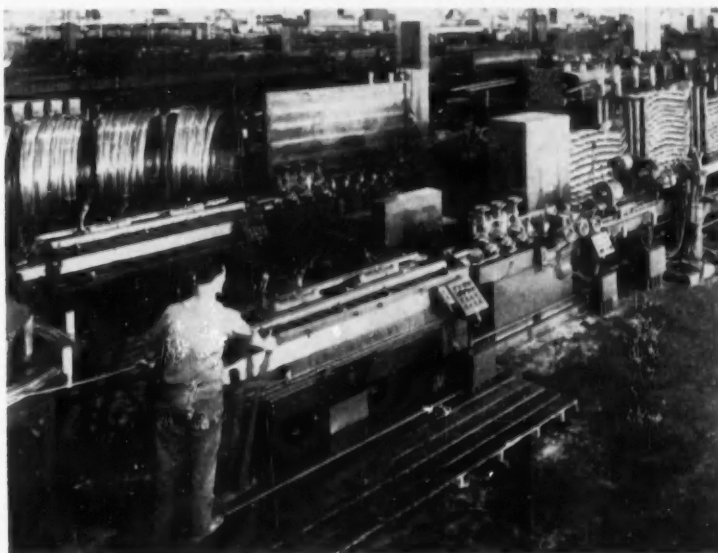
## YORK BUYS LEHIGH AUTO UNIT FACILITIES

Lehigh, Inc., Easton, Pa., has sold its newest automotive air conditioning compressor and related manufacturing facilities to York Div. of Borg Warner Corp., according to F. E. Shumann, chairman of the board.

The Lehigh Model A-210 compressor is being installed in the 1958 models of several leading automobile manufacturers and is being supplied to most of the independent manufacturers of automotive air conditioning systems.

With the sale of its automotive compressor business, Lehigh intends to concentrate on hermetic and open-type condensing units

## ELECTRONICS ENTERS CHASE PLANT



**ELECTRONICALLY-CONTROLLED** machine in the Cleveland plant of Chase Brass & Copper Co. converts large coils of hard-drawn tube from the circular inverted draw-blocks into straight lengths up to 60' long or into coils as large as 3,000'. It automatically draws the tube to final diameter, straightens it, and then cuts precise lengths to customer specifications.

and other refrigeration products.

The company will continue to supply parts and service for all previously manufactured models of Lehigh automotive compressors with the exception of the 1958 Model A-210.

## TENNITY TO HEAD WESTERN ASSOCIATION

William P. Tennity, of Los Angeles, has been elected president of the Western Air Conditioning Industries Association. The association is dedicated to the advancement of air conditioning and related industries.

One of its major programs has been the Western Air Conditioning, Heating, Ventilating and Refrigeration Conference and Exhibit, scheduled for May 7-11, 1958, at the Shrine Exposition Hall in Los Angeles.

Arthur Hess was named vice president and Fred J. Tabery re-elected secretary-treasurer. Also re-elected to the board were: Peter H. Askew, W. W. Allison, Richard Farr, R. E. Harkens, George Hatch, E. L. Nelson, D. E. Reznick, Robert H. Savage, Henry C. Ulovec, and Robert Warden.

It has been decided that the exhibit would be held every other year after the 1958 show. It was agreed, however, to have the 1958 exhibit, despite the fact one had been held in 1957, so that henceforth the Western show would fall in alternate years with national shows in the industry which also are held biennially.

Tennity appointed Hess and Ulovec to serve on a committee to formulate the technical portion of the 1958 program.

Tennity is president of Tennity & Co., Tennico, Inc., Tenaire, Inc. and Crystal Tips, Inc.

## BUENSOD-STACEY REPS

Appointment of two new sales representatives has been announced by Buensod-Stacey, Inc. D. E. McCulley Co., Omaha, Neb. and A. J. Hamilton of Bridgeport, Conn., are the new representatives.

## DIVISION NAME CHANGED

Robertshaw-Fulton Controls Co. has changed the name of its Field-en Instrument Div. to Instrument Div.

# CONTRACTORS

NEWS • ACTIVITIES • PLANS

## Charles Walling New RACCA Head; Anti Bid-Shopping Bill Opposed

Charles L. Walling, Los Angeles, was elected president of Refrigeration & Air Conditioning Contractors Association at the 12th annual convention of the organization Nov. 17-19 in the Drake Hotel, Chicago.

Armand Cowan, Miami, was elected first vice president; Lee J. Quinn, Cincinnati, second vice president; H. W. Hottel, Washington, D. C., treasurer; Joseph Marchase, Pittsburgh, recording secretary; and Ron Garlock, Lansing, Mich., sergeant-at-arms.

Directors who will serve with the officers are Thomas Alexander, Denver; William Peine, Indianapolis; Harvey Miller, Chicago; John Stewart, Cleveland; Walter McCarty, River Forest, Ill.; Al G. Dietl, Newark; and immediate past president William Moody, Houston.

### UA Opposes Bill Too

The new RACCA board officially expressed its opposition to House of Representative bill 7168, the so-called anti bid-shopping bill. In taking this stand, RACCA has lined up with United Association of Plumbers and Pipe Fitters, whose general president, Peter T. Schoemann, declared in a luncheon address during the meeting that the UA was determined to see that the bill does not become law.

The measure has already passed the House and awaits Senate floor action.

Schoemann told RACCA members at the luncheon that "as the bill now stands, it would be a menace to the plumbing and pipe fitting industry", and that it "would very pointedly affect members of RACCA who bid on government work."

Schoemann called the measure

a "permanent legislative guarantee of bid shopping." He also attacked the provision restricting contracts for mechanical specialty work—that is, heating, piping, plumbing, refrigeration and air conditioning—to work on buildings and only "to a point five feet outside the building line."

Wilbur S. Hokom of Los Angeles, president of the National Association of Plumbing Contractors, also spoke at the RACCA luncheon meeting in opposition to

### HIGH HANDLING



**THIS 200' CRANE** does the trick to hoist air conditioning coils for installation on the roof of the 12-story Pacific Mutual Bldg., Los Angeles. The units are supplied by Drayer-Hanson with the total cost for the project being more than \$1,250,000. Activated charcoal filters are being utilized to help make local citizens feel more comfortable from the gases that make up the smog.

the bill. His organization represents about 10,000 plumbing contractors from coast to coast.

He said that the bill jeopardizes 10 existing state laws which effectively prevent bid-shopping, six of which require entirely separate bidding of mechanical specialty work.

The bill in its present form is favored by the Associated General Contractors and some mechanical contracting groups. Hokom urged RACCA members to contact their senators and go on record as opposed to passage of the legislation.

Under the general chairmanship of W. L. Long, president of Chicago RACCA, two forums covering problems of current interest to contractors were conducted.

### Forums Draw Interest

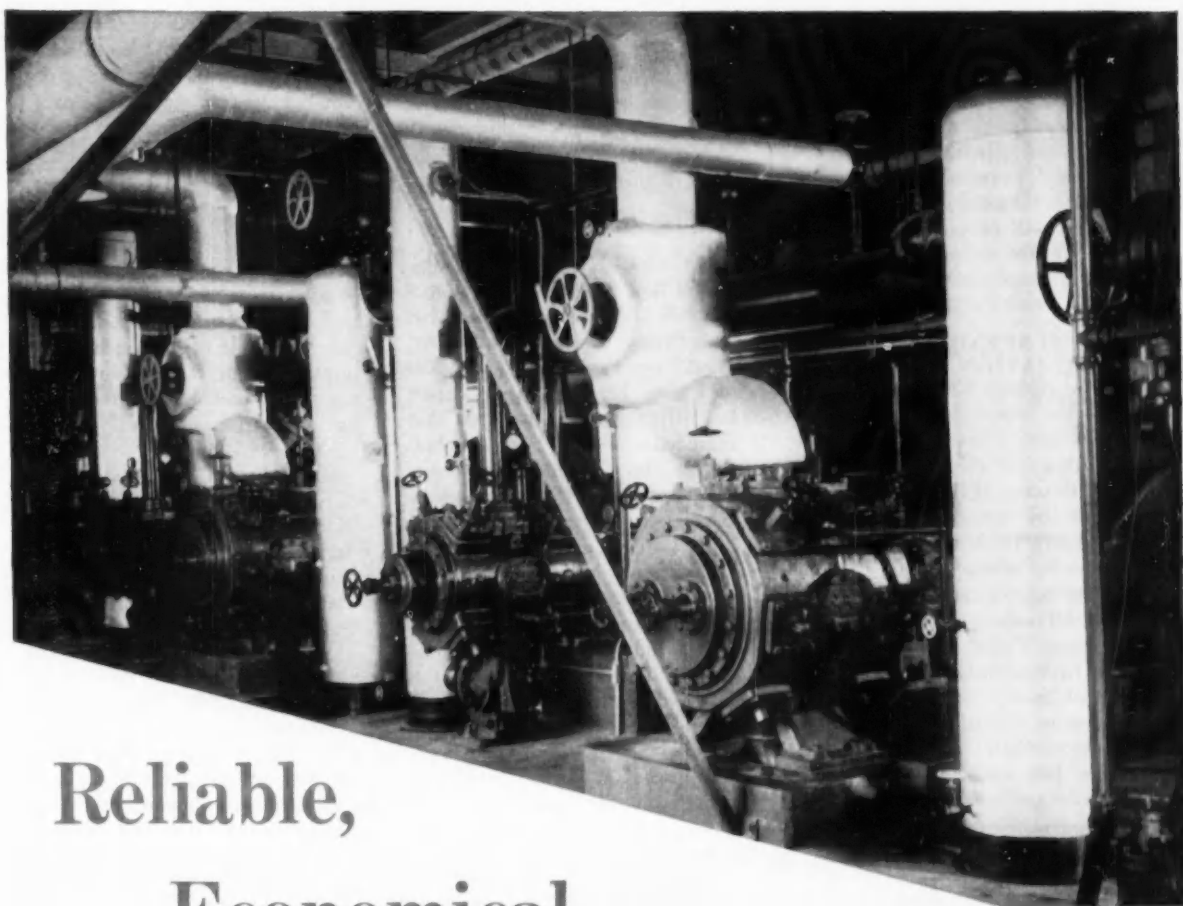
At the first session, called the "Money Making Forum", Long served as moderator. Taking part were Albert G. Weil, who covered "Compensation of Salesmen"; Paul Unger, on "Development of Sales Engineers"; Guido F. Restagno, on "The Secret of Good Management"; George T. Howe, on "Selling for Profit"; and Louis H. Streb, on "Fallacies of Price Cutting". All these men are members of Chicago RACCA.

The second session was called the "Welfare and Progress Forum", and had Harvey O. Miller as moderator and director.

Participants in this discussion were Warren Farr, Cleveland, who covered "Profit Sharing Plans"; Walter McCarty, River Forest, Ill., whose topic was "Maintenance Contracts"; Charles Edmonds, Newark, on "Value of Local Joint Committee Activity"; Charles L. Walling, Los Angeles, on "Relations of Management and Employees in Collective Bargaining"; and Harvey Hottel, Washington, D. C., on "Government Agency and Related Association Relations".

Al Dietl, a scheduled member of this panel on "Comparative Net Profits and Operation Costs", was unable to attend the meeting because of illness.

Practical points of current interest to contractor organizations, large and small, were developed by each of the speakers at the



## Reliable, Economical...

### *lubricated with Texaco Capella Oil Waxfree*

Reliable operation is a must; maintenance costs must be kept down. You'll find *Texaco Capella Oil Waxfree* keeps refrigeration compressors running more smoothly, longer and at top efficiency.

*Texaco Capella Oil Waxfree* doesn't wax out in systems, even when the temperature drops as low as minus 100 degrees F. Its haze and floc temperatures are exceptionally low. Outstanding for its stability, *Texaco Capella Oil Waxfree* also is designed for high resistance to oxidation. In addition, it does not foam and it is compatible with all refrigerants.

There is a complete line of *Texaco Capella Oils*

*Waxfree* to meet the specifications of all leading compressor manufacturers. It is available in 55-gallon and 5-gallon drums, 1-gallon cans; and the more popular grades can be bought in 1-quart containers. All are refinery sealed to protect the Texaco quality and purity.

Your Texaco Lubrication Engineer can help you select the proper lubricant for your system. Just 'phone the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, New York.

**TUNE IN...METROPOLITAN OPERA RADIO BROADCASTS EVERY SATURDAY AFTERNOON**



# **TEXACO Capella Oils Waxfree**

**FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS**

Circle No. 53 on Reader Service Card

forum sessions, which occupied the entire morning portions of the two days in which general meetings were held. Panel members answered questions from the floor at the end of each topic.

A more complete report on most of the subjects covered in the forums will be published in later issues of COMMERCIAL REFRIGERATION & AIR CONDITIONING.

#### AEC SUSPENDS FOOD IRRADIATION PROJECT

The Atomic Energy Commission has suspended activities directed toward the design and construction of the Food Irradiation Reactor (FIR) and will terminate its contract with Kaiser Engineers, Oakland, Calif., for development work on this project.

The reactor was being developed for use by the Army Quartermaster Corps in food irradiation experiments and other projects at the U. S. Army Ionizing Radiation Center, to be built at Stockton, Calif.

The Department of Defense has recently indicated an interest in

the investigation of alternative sources of gamma irradiation such as long-lived radioisotopes or spent reactor fuel elements. Pending the results of this investigation, the Commission has suspended development work on the FIR.

#### KING-SEELEY PURCHASES QUEEN PRODS. HOLDINGS

A. N. Gustine, president of King-Seeley Corp., Ann Arbor, Mich., and F. A. Trow, president of Queen Products, Inc., Albert Lea, Minn., have announced that arrangements have been concluded for the purchase by King-Seeley of Queen Products and its associated company the Albert Lea Building Corp.

King-Seeley supplies speedometers, gauges, instrument panels, and other equipment for the automotive industry and also manufactures power tools, domestic fans, and electrical control devices.

Queen produces ice-making machines, both cube and flake models; finishing and deburring equipment; camping equipment con-

sisting of portable ice boxes, gasoline lanterns and stoves; and oil and gas heaters.

#### INLAND GROUP ELECTS T. HERBERT PRESIDENT

Thomas C. Herbert of Ford Heating, Pamona, Calif., has been elected president of the Inland Air Conditioning and Refrigeration Contractors Association.

Elected vice president was James M. McDonald of Riverside Refrigeration. John H. Wingate, was named secretary-treasurer. Both are from Riverside, Calif.

Named to the board of directors were: Thomas E. Topham, Tri City Climate Control Co., Riverside; George J. Robinson, California Air Control, San Bernardino; J. W. Eicheer, Simsarian's, Palm Springs; and James W. Collins, Air Handlers, Rialto.

#### DISTRIBUTOR APPOINTED

Palmer Supply Co. of Tulsa, Okla., has been appointed a distributor of Recold Corp. commercial refrigeration products.

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*A Superlative--Economical product*

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103 PARK AVENUE, NEW YORK 17, N. Y.  
Dole Refrigerating Products Limited, 44 Elgin Street, Brantford, Ont.

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*Cold-Cel* TRUCK  
PLATES



## AMERICAN POTASH OPENS COLUMBUS, OHIO OFFICE

American Potash & Chemical Corp., has opened a new district office at Columbus, Ohio, covering outlets in Ohio, eastern Indiana, southern Michigan and Kentucky.

Chester A. Lawton, who has been with the firm since 1950 as district representative in the mid-western area, has been appointed manager of the new district office.

Lawton will be in charge of all company product sales in the new territory under the direction of A. J. Dirksen and E. M. Kolb, eastern general sales managers of AP & CC's Industrial Chemicals Div. and Heavy Chemicals Div., respectively.

## DEAN PRODUCTS NAMES 25 REPRESENTATIVES

Dean Thermo-Panel Coil Div. of Dean Products, Inc., Brooklyn, N. Y., announces the appointment of 25 new representatives. They are:

Associated Engineers, Birmingham, Ala. Jack Chichester, Joseph Roubicek; A. A. Betts Co., Cincinnati, Ohio. A. A. Betts, Howard H. Hyland, Herbert P. Schaffer, and Michael J. Daly; Colby Equipment Co., Indianapolis, John R. Colby, Charles I. Colby, Larry E. Johnson; R. J. Denton Co., Syracuse, Ralph Denton, Les Stern, Frank Roberts;

H. F. Eastman Co., Inc., Needham, Mass. H. F. Eastman, E. Spinney; Edward H. Elliott, Philadelphia, Pa.; Forsyth-Constant Co., Portland, Ore. E. S. Constant; Horblit & Co., Denver, William Horblit, Ed Cowan, E. R. Hunt, Jerry Maine, Lorenzo Bishoff, Max Vest, Jim Hixon. Alfred Kent & Son, Houston, Tex. Alfred Kent, south eastern Texas; R. W. Peterson;

Roger P. Kipp, St. Louis, Mo., Roy B. McCrady; Louisiana Steam Equipment Co., New Orleans Joseph D'Amico Jr., Terence J. Maderon; George R. Mellema Co., Minneapolis, George R. Mellema, Harry T. Hallstein, Robert Stark, George J. Carney; Montanye Engineering Sales, Salt Lake City, Stan Montanye, Jerry Thompson, C. C. Hilliard;

William E. Neumeister, Buffalo, Bernard Packtor Co., New Haven, Conn. Also, for office and warehouse: Bernard Packtor, Robert Beach, Robert Ripley, Wilfred A. Young, Burton H. Paulson. State of Conn., western Mass., and Rhode Island; Steve Palmer & Co., Atlanta, State of Georgia and eastern Tenn.; Joseph L. Paradis, Greensboro, N. C.; Charles C. Plummer, Washington, D. C.;

Smith Monroe Co., South Bend, Ind. John Parnell, Verrill Smith, Thomas J. Hess, Hugh S. Bain, Ray A. Hess, Carl A. Ramsey. W. D. Robbins, Harry M. Byers, Smith-Monroe Co., Fort Wayne, Ind.; W. Scott Turner, Arcadia, Calif.; W. M. Wilson Co., Berea, Ohio. Shipping address — 8301 Pearl Rd., Strongsville, Ohio. Warren M. Wilson, W. F. Rupnow, David E. Hall, J. Baird, Anthony Brock;

Johnson Roney II & Associates, Inc., Clearwater, Fla.; Avery M. Walsh & Sons, Albany, N. Y. Robert Walsh; Kent Engineering Co., West, Montreal, Canada. Cliff Kerr, D. Crichton, Kent Engineering Co.; Ottawa, Ont.; and T. J. McCarthy Ltd., Sarnia, Ont., Canada. T. J. McCarthy.

## TWO FIRMS NAMED BY INDUSTRIAL ACOUSTICS

The appointment of two sales representatives has been announced by Charles N. Rink, manager of the Air-Conditioning Dept. of Industrial Acoustics Co., Inc., New York. John B. Hewett Co., Inc., has been appointed to cover the Metropolitan New York area. Sales in the Indianapolis, Ind. area will be covered by A.G. Allen & Co.

## 2 COMPANIES REACH SETTLEMENT IN SUIT

Robertshaw-Fulton Controls Co. and Dole Valve Co. have reached

a settlement of a three-year old patent suit involving charges and countercharges of infringement of patents relating to mixing valves for washing machines and other thermostatic controls.

In the settlement, Robertshaw-Fulton obtained license rights for controls in the laundry machine field and Dole, likewise, obtained rights under Robertshaw-Fulton owned patents charged to be infringed.

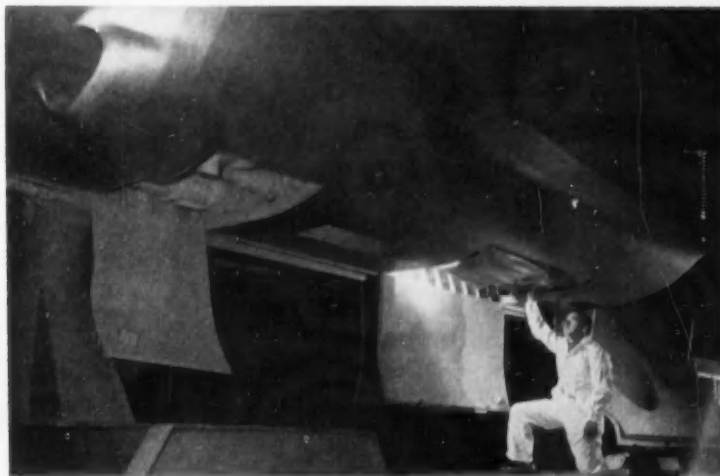
The suit, which was pending in the District Court of the United States for the Northern District of Illinois, is being dismissed without costs to either party.

## STYROFOAM DISTRIBUTOR INCREASES FACILITIES

Increased volume of "Styrofoam" sales has prompted the move of Wiley-Bayley, Inc., northwest distributor of this Dow Chemical Co. plastic foam insulation, to larger warehouse facilities at 3310 Meridian, Seattle.

Wiley-Bayley's new warehouse, which will supply users over western Washington, provides twice the space of the former Seattle location. A railroad siding gives the new warehouse direct railway loading facilities.

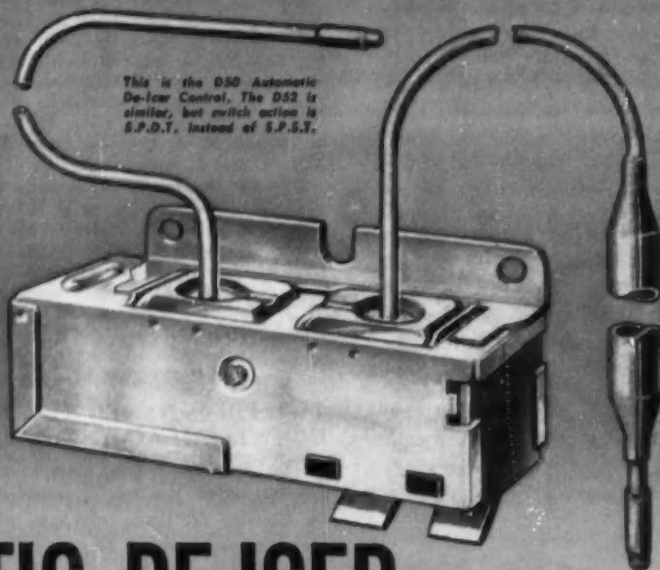
## JET'S FREON SYSTEM EASY TO SERVICE



**WORLD'S FASTEST JET**, Convair 880 transport, has easy access for maintenance and servicing "Freon" system used in air conditioning the jet. A workman demonstrates on the full-scale wooden mockup at Convair-San Diego Div. of General Dynamics Corp. how the "Freon" condenser unit can be removed by taking out three bolts and disconnecting three ducts. System is capable of maintaining stable temperature of 75 degrees in flight or 80 degrees on the ground. A complete change of air is delivered every 2 1/2 minutes. Two compressors and two "Freon" system loops are connected by cross-ducting, but are capable of individual operation.

# Ranco D50 and D52

## AUTOMATIC DE-ICER CONTROLS



Here are revolutionary new controls developed by Ranco research to make reliable, completely automatic heat pump operation an actuality in a much wider geographic area than ever before. Efficiently simple, D50 and D52 Automatic De-Icer Controls are the only controls which detect the coil ice to be removed quickly and automatically. They operate on the increase of temperature differential between ambient outside air and the outside iced coil as compared to a clear coil. "Spread temperature" for initiation of the de-icing cycle is adjustable on both controls and both automatically terminate the de-icing cycle after ice is removed from the coil.

Two capillary tubes permit mounting the control in a weather-protected compartment with one tube extending into the air stream and the other with bulb for attachment to an end bend at the middle of the coil. Ambient air power element action is not effective in ambient temperatures above 48°F after de-icing, permitting operation of the fan through the de-icer circuit in the cooling phase.

Contact Ranco about this sensational De-Icer Control, and ask about the new slide-type reversing valves and automatic cycling control designed to work with the automatic de-icer to give absolutely automatic heat pump operation.

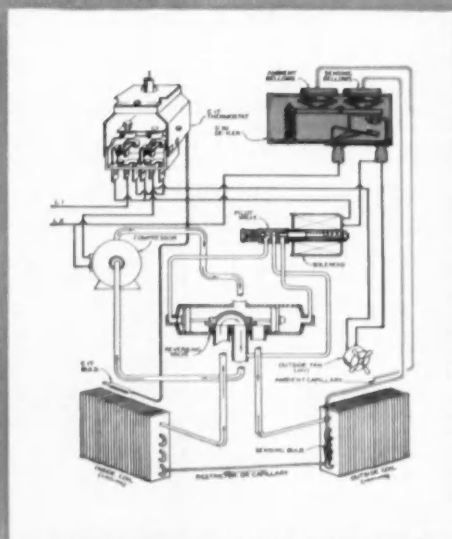


Diagram above shows de-icing phase of heat pump (Ranco D50 Automatic De-Icer in blue). In 3-5 minutes, the coil clears of ice, the de-icing cycle is terminated, fan motor starts and solenoid valve is re-energized to return unit to heating phase . . . all automatically!



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World's Largest Manufacturer of Refrigeration Controls COLUMBUS 1, OHIO

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# Here's How

## PROFITABLE SERVICE AND INSTALLATION PRACTICES

### *There's a Trick To Joinin New Freezers To Old*

WHEN A NEW FREEZER is built adjacent to another zero degree room, one of the chief problems is joining the concrete wearing floors at the door thresholds.

This joint must be strong enough to support the frequent traffic and heavy weight of loaded lift trucks. To construct a strong door sill, the temperature of the concrete on the freezer side must be raised to a point at which the newly poured concrete in the adjacent room will form a strong bond with it.

There are several good ways of doing this job. The method illustrated and described here was employed by Armstrong Cork Co. in an installation for a grocery warehouse. This job was complicated somewhat by the fact that the existing room was practically filled with small packages of frozen food and so had to be held at storage temperature throughout construction of the adjoining freezer.

To begin this job, a wooden box of planking (1,1) was built around the lower portion of the common wall where the doors were to be cut through. This box and the floor around it were covered with loose pieces of corkboard to help warm up the encased edge of the concrete slab. At the same time, corkboard insulation prevented loss of refrigeration when the lower portion of the wall panel was cut away.

From the new room side, the perimeter of the door was partially cut through the wall common to both rooms (2). The bottom was completely cut through

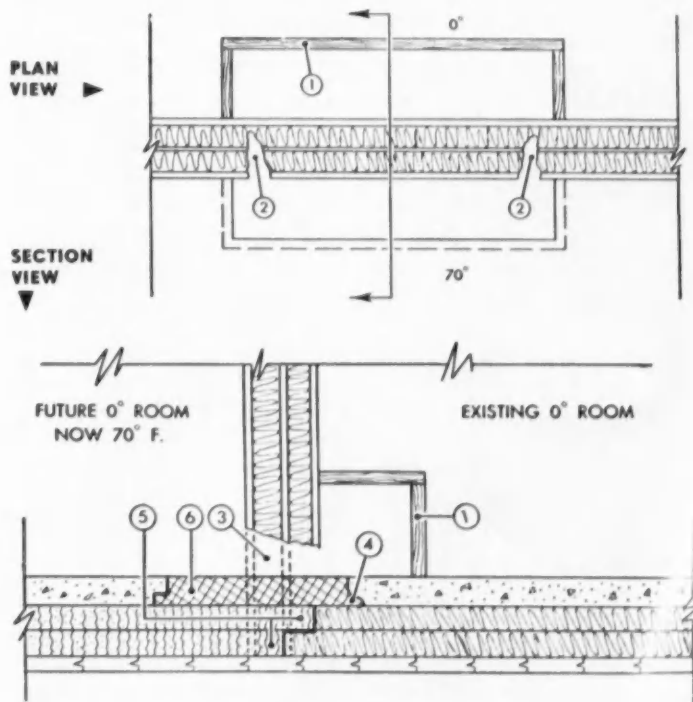
(3). This left a cork plug suspended in position to hold room temperature until the final cut-through.

Next, the bottom edge of the existing slab at the threshold was cut away to form a future construction joint (4). Then all the insulation, including the floor cork with stepped joint (5) at the threshold, was installed.

When the concrete floor was poured, a construction joint (6) was left open at each doorway. After warming the exposed edge of the original concrete slab with

a torch to draw frost, the joining patch of concrete was poured. This batch was mixed with early setting cement and calumil chloride to prevent freezing through conduction from the old slab.

After the new room was under refrigeration, the remaining portion of the doorway was cut through the cork wall. Each doorway was then encased with a metal protected wood casing. As soon as the refrigeration system brought the new room to correct temperature, the new storage space was filled with frozen food.



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For sale, Refrigeration Sales and Service Business. In business and operating at top rate for 12 years. Reason for selling, age and health. Can be bought very reasonable. Box 12157, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

### AMANA SHOWS '58 LINE AT REGIONAL MEETING

Amana's new 1958 air conditioner line will be shown to distributors in a series of regional meetings to be held the early part of December. Tentatively, the schedule of meetings includes showings at Amana, New York, Atlanta, Dallas, Los Angeles, and Portland, Ore.

## CAR COOLING . . .

*Continued from page 34*

salesmen who have bought units for their cars are recorded and included in the broadcast commercials. Listeners (salesmen) are invited to check in at the firm's headquarters, and leave their cars for a few hours of a "revelation in comfort."

Two air conditioned cars are kept at the company for cooling demonstrations. Stearns prefers to put the prospect into an uncomfortably hot automobile with its windows down, on a hot day. He then will ask the customer to close the windows. The prospect then is taken for a short ride around the block. During the drive, Stearns demonstrates how the air conditioning unit starts producing cool comfort inside the car. "That's the clincher," he says.

Stearns' faith in automobile air conditioning probably never was more completely justified than in the case of a \$400-plus installation ordered by one traveling salesman who assumed that his company would pay for the cooling unit. After the installation had been completed, the company balked at footing the bill. By this time, however, the salesman was so pleased with the performance of the equipment that he not only paid the entire bill himself but also directed 18 prospects to H & S during the next six months.

### WATER SERVICE LABS. CONTINUES EXPANSION

Water Service Laboratories, Inc., chemical engineers and specialists in corrosion control, has leased for its Philadelphia office the entire 11,000 sq.ft. building at 169 W. Wyoming Ave., it is announced by Henry L. Shuldener, president.

This transaction marks the fourth expansion move by the firm in little more than a year. Other recent moves include the leasing of larger quarters for the company's New York headquarters, the opening of a new service annex and the creation of a branch office in Richmond, Va.

**WIN A PRIZE!** Send your cartoon suggestions on the subject of "Genetron" Super-Dry Refrigerants to: "Genetron" Dept., General Chemical Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y. WE WILL PAY \$10 for every cartoon idea used and print your name and address.



*The chief doesn't want it unless it  
uses genetron® Super-Dry Refrigerant!*

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## "DUPLEX" CONTROLS . . .

*Continued from page 39*

Further, the problem of automatically controlling the stand-by or booster compressor was extremely complicated. Most of these complications were caused by the fact that two compressors were operating on a single low side.

In 1951 the author installed several "duplex" systems which consisted of two separate refrigeration systems in each room, each complete with its own low side. These systems, one of which was featured in the September 1953 issue of *COMMERCIAL REFRIGERATION & AIR CONDITIONING*, did provide positive protection against individual condensing unit breakdown or low side breakdown. In fact, it was protected against everything except prolonged electrical failure.

Control of the system was amazingly simple. Low pressure controls were set on identical settings on each compressor.

On installations where people worked in the coolers, however, one disadvantage developed. The fact that two fan systems were used, running simultaneously, caused personnel annoyance and discomfort, particularly on jobs sized on the heavy side to handle large product loads.

The principal of the duplex system is well established and its very simplicity offers many advantages. The accompanying diagram illustrates how a duplex system may be set up rather simply to utilize only one fan coil at one time.

Two completely separate systems are used. By throwing a four-pole double throw switch, either compressor may be made the lead unit. Settings in a 35 F room would be approximately 20 lbs. cut-out and 35 lbs. cut-in. (F-12), on the lead condensing unit. The booster unit may then be operated from a timer-actuated relay.

The operating cycle of the system is set up after first determining the duration of a compressor cycle on a normal degree day (70 F) with normal room product loading. Let us say that this compressor operating cycle is of 30

minutes duration. Obviously, running time beyond this cycle can be attributed to an over-loaded condition. So the timer-actuated relay is set to bring in the booster unit at 31 minutes and also to start the fan on the coil unit.

The wiring diagram shown embodies only three extra pieces of equipment—the timing device, the relay, and the four-pole, double-throw manual switch. Total cost of these three items normally should not exceed \$60.

Control of this system by the operator is extremely simple, as the double-throw switch is the only control needed to alternate the condensing units.

## STEAM HEATING . . .

*Continued from page 37*

steam to heaters, and a separate pipe is used to return condensate. Fig. 3 shows a typical down feed system. The main steam line is run to the top of the building and steam fed through risers from top to bottom. Up flow systems are also used.

Condensate is drained from heaters through traps, usually thermostatic. Risers and horizontal steam lines are also drained through traps as indicated.

Two-pipe systems may be steam, vapor or vacuum.

If air vents and eliminators are not equipped with check valves, and permit air to enter the system when pressure falls below atmospheric, the system is called low pressure steam. This system cannot provide heat to the entire system when the boiler steaming rate is diminishing. The entrance of air increases the tendency to corrode. The steam system has the advantage of more positive return of condensate to the boiler.

When air eliminators are provided with check valves to prevent entrance of air, the system is called a vapor system. This system can operate at pressures ranging from 20" vacuum to 15 psi, depending upon the tightness of the system. The vapor system can provide heat with vapor temperature less than 212 F, since temperature will vary with pressure.

A condensate receiver and float controlled pump may be used to return water to the boiler with any two-pipe system. A check valve must be installed between boiler and pump to prevent pressure forcing water from the boiler back through the pump. In a vapor system, a check valve must be installed in the air vent line from the receiver, to prevent entrance of air.

A vacuum system is one equipped with a pump that receives water and air from return lines, separates it and discharges air to atmosphere and water to the boiler. It must be able to maintain a vacuum in return lines under all operating conditions. Both supply and return piping, as well as the boiler, may operate below atmospheric pressure. The writer has observed large systems with automatic firing equipment which shut off at 4" vacuum and on at 20".

In order to maintain proper difference between supply and return line pressure, all traps must function properly and should be checked periodically. Leaks in the system will be evidenced by the amount of air ejected by the pump. Properly installed and operated, the vacuum system is most economical to operate and responds most quickly and quietly to demand.

## CONTROLS CO. BUILDS 50,000 SQ.FT. PLANT

Controls Co., of America has announced plans for the building of a 50,000 sq. ft. light manufacturing plant at North Manchester, Ind., to house operations transferred from its present Spring Valley, Ill., facilities.

Louis Putze, president, said a 10-acre site donated by the city is being used and construction started at the end of October. Occupancy is scheduled for January.

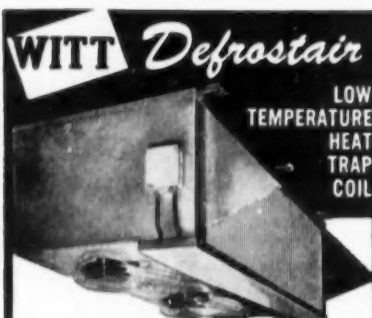
The plant will be a one story, brick exterior structure and when in full production will house some 300 employees in the manufacture of timers and switches for the home laundry industry. The Spring Valley plant will be vacated and sold, Putze said.

## TOP SECRET REVEALED!

The closely guarded secret of how hundreds of refrigerator and air conditioning service and repair men find the extra time to take on more jobs — take home a bigger pay envelope, has been revealed. It's Frankell's Hermetic Compressor Opener — a fully proven, precision engineered unit that requires only 2 minutes of a man's time to open any shape compressor (up to 20" in dia.) — regardless of the position of the weld. It's as easy as A,B,C, — anyone can do it . . . no special fixtures or jigs required . . . and just one hermetic job a week pays for this time saving, money making wonder. Remember, when you repair a hermetic compressor — the profits are big.

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Defrostair's patented heat trap system takes advantage of the fact that warm air rises and can be trapped under a head. For example, move your hand a few inches above a lighted candle and only a small amount of heat is felt. Now place a metal container over the candle. In a matter of minutes it is extremely hot because the heat is confined under the canopy or head.

Witt Defrostair patented heat trap coil requires only a low cost single pole, double throw time clock for complete automatic defrosting. Easy low cost installation, requires no re-evaporation or special plumbing. Available in 14 models ranging in BTU capacities of from 3800 to 38,000 at 10°F.D.

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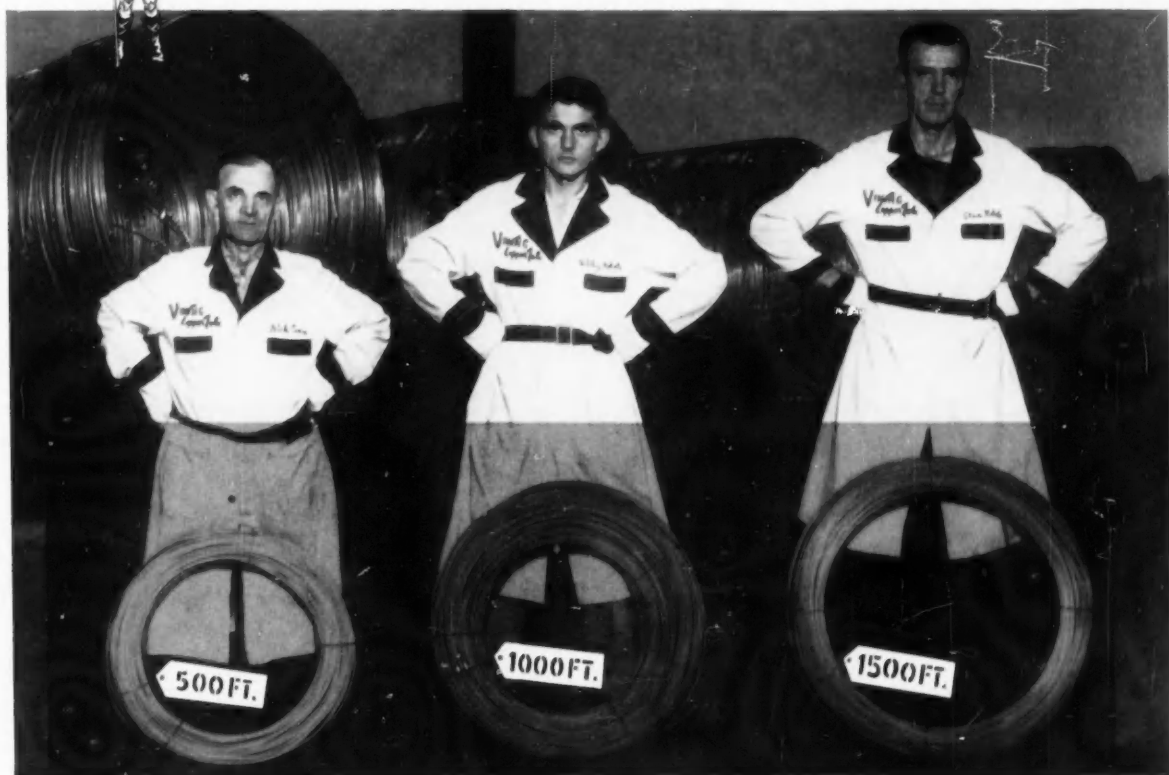
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George C. Webster

## Have you analyzed your business?

"How To Analyze Your Own Business" will be the first of a series of articles starting in the January issue of **COMMERCIAL REFRIGERATION & AIR CONDITIONING**. These articles will be authored by George C. Webster, and are designed to help dealer-contractors in the air conditioning and refrigeration industry improve their operations by careful analysis of what really goes on in their business.

Mr. Webster is eminently qualified to write on business planning and procedures. For many years he has operated a successful retail heating and air conditioning business in Washington, D. C. He also serves as president of Wilson Supply Company, and has directed this company since its beginning in 1953. Today, it is one of the larger distributing organizations in the country.

In addition to his direct connections with our industry, Mr. Webster is president of George C. Webster & Associates, Inc., a management consultant business established in 1954. He is currently teaching Business Budgeting and Executive Control at the American University Graduate School of Business Administration.

Mr. Webster's educational background consists of a B.S. in engineering, an L.L.B. and L.L.M. from Georgetown Law School, and an M.A. degree from the Harvard Graduate School of Business Administration.

Mr. Webster's how-to messages will appear monthly as part of **COMMERCIAL REFRIGERATION & AIR CONDITIONING's** continuing efforts to help its readers. These timely articles are planned to help your business operate more efficiently, more profitably. Don't miss them!

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